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A Spirit of Fairness and Thoughtful Consideration Should Persuade Most, if Not All, of the Members of a Trade or Profession to Become Part of and Aid in the Promotions of Their Respective State and National Associations.—Persuade Others to Join You in Your Efforts—to Be Your Fraters and Co-Workers.

Vol. XVI, No. 10 OCTOBER, 1927

JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

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THE SEVENTY-SIXTH ANNUAL CONVENTION WILL BE HELD AT POLAND SPRINGS, ME., SEPTEMBER 1928.

The 1928 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conferences of Pharmaceutical Research and of Pharmaceutical Association Secretaries will also be held at Poland Springs, same time and place.

For Association Roster and Roster of the Boards of Pharmacy, of Officers of Pharmaceutical Associations, Local Branches, see pages x, xii, xiv, etc.

Entered as second-class Matter, January 23, 1917, at the Post Office at Easton, Pa., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103. Act of October 3, 1917; authorized July 10, 1918.

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THE SIGNIFICANCE OF COÖPERATION.

ASSOCIATION membership is an investment—the returns may not come in dividend checks but in many other ways, not the least of which is the actual return from the services rendered by the ASSOCIATION.

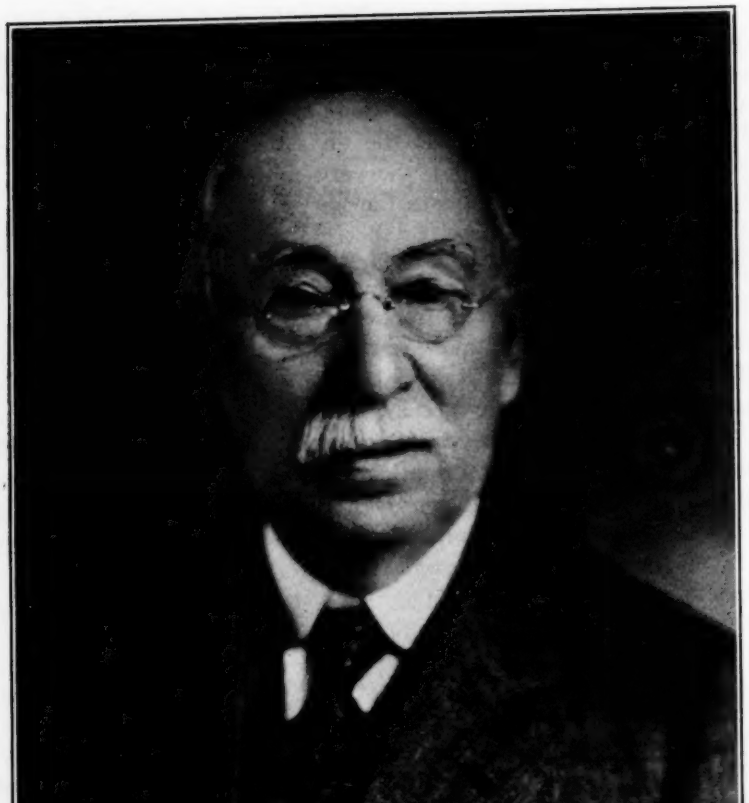
"Pharmacy Week" has contributed largely to the drug trade in general and to pharmacy—by acquainting the public with the activities of pharmacists, with the protection given the people by more efficient service and standardized medicinals. The very fact that "Pharmacy Week" is talked about; that there are appropriate displays in the windows; announcements; that the divisions of the drug trade give their time and money; in fact, the very coöperation itself is publicity of a high order which impresses the laity. The people judge a trade or profession by the measure of value applied by the votaries to their activities.

The cumulative effect of publicity creates the permanent impression: The public notes that large business concerns—organizations that represent them—are giving of their time and money; that retailers are coöperating in carrying the message of pharmacy to the people in their stores and by window displays and, coöperatively, all the interests are making use of the printed page. It is the team-work that creates the favorable impression; coördinated efforts testify to the belief of those engaged in the importance of the service they are rendering. It is the ASSOCIATION endeavor—the work-together idea—that develops a receptive audience; it enthuses the speakers over the radio, at the clubs, at conventions, before business men's organizations.

Aside from commending the "Pharmacy Week" idea and those who have so successfully coöperated, the message of this page is an effort to have you fully realize the value of coöperation and apply it in making the AMERICAN PHARMACEUTICAL ASSOCIATION of greater service and value to yourself by inducing others to answer its roll call. As you know, "Pharmacy Week" is only one of many activities that originated within the AMERICAN PHARMACEUTICAL ASSOCIATION.

Pharmacy will take a great forward step and receive better public and governmental recognition "when the average retail druggist, without prompting or urging, shall consider the support of state and national associations a matter of course and, as much an established part of his business policy as the carrying of fire insurance or the keeping of a telephone." Let us direct our efforts to bring this about.

The Membership Committee list is printed as part of the roster, refer to it and do your part in adding to the numerical strength of the ASSOCIATION, mindful of its place in coöperative public service.



E. V. ZOELLER.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XVI OCTOBER, 1927 No. 10

EDWARD VICTOR ZOELLER.

It is now about fifty years since E. V. Zoeller became a member of the AMERICAN PHARMACEUTICAL ASSOCIATION and he is still active in its affairs, seldom missing the annual conventions.

He was born in New York City, September 19, 1857, and during the spring of the following year his parents moved to Tarboro, where Mr. Zoeller still resides; here he received his early education. A half century ago he was graduated, with high honors, from the New York College of Pharmacy; after graduation the young pharmacist entered business with Dr. L. L. Staton, which partnership continued until the death of the latter, in 1922, when Mr. Zoeller became the sole owner of the pharmacy.

He was one of the organizers of North Carolina Pharmaceutical Association, of which he was elected Life Member in 1923; he served as its Secretary for three years and as President in 1890–1891. As member of the State Board of Pharmacy Mr. Zoeller has an unbroken tenure of thirty-five years and as its President for thirty-three years. In the latter capacity, if not in the former, he holds an unsurpassed record. He has been Vice-President of the National Association of Boards of Pharmacy. The University of North Carolina, in 1922, honored him with the degree of Doctor of Pharmacy. Outside of pharmacy, he holds membership in a number of National and State organizations; among them, the American Association for the Advancement of Science, American Meteorological Society, North Carolina Academy of Science.

The January 1924 *Carolina Journal of Pharmacy* was dedicated to the veteran member "in appreciation of his kindliness of manner, modesty of mien, and broadness of character; in recognition of his long-sustained, self-directed and result-producing efforts on behalf of pharmacy; and as a tribute which bespeaks the warm regard in which he is held by every druggist of the State."

Mr. Zoeller takes an active interest in municipal affairs and has been Councilman and Mayor of Tarboro.

EDITORIAL

E. G. EBERLE, EDITOR 10 West Chase St., BALTIMORE, MD.

A MESSAGE FROM PRESIDENT C. W. JOHNSON TO THE MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Fellow Members:

Your support of the AMERICAN PHARMACEUTICAL ASSOCIATION, as a member, is evidence that you believe in its worth and are convinced that you receive five or more dollars' worth in return for your money.

I am proposing in this note that you make it possible to materially increase your returns on your money invested by doing just a little work—the results of which will greatly extend the usefulness of your ASSOCIATION.

One of the major problems of the AMERICAN PHARMACEUTICAL ASSOCIATION is to increase its membership. If the membership roll could be doubled, the usefulness of the ASSOCIATION would be increased many times—more advertising and higher paid advertising would come to our JOURNAL, and more money would be available to make the JOURNAL better and to extend the work of the ASSOCIATION in educational and legislative endeavors for your benefit.

I am confident that it would be a very easy task for each member of the AMERICAN PHARMACEUTICAL ASSOCIATION to secure *Just One New Member.* All it takes is the effort to solicit a pharmacist who does not now belong to the ASSOCIATION and the *Confidence* in yourself that you are selling him something that is worth while.

In the advertising section, at the back, you will find an *Application Blank.* Will you make use of it at once and if your enthusiasm is running high send in the name of another applicant and write to Secretary E. F. Kelly, 10 West Chase St., Baltimore, for more blanks?

Remember, if each member will do this, our membership will be doubled in a week's time. Is this asking too much of each member? I believe not.

Let us all pull together for a greater membership and an association of correspondingly greater usefulness.

Sincerely,
C. W. JOHNSON, *President,* A. PH. A.,
Seattle, Wash.

PHARMACY WEEK.

INDICATIONS this year have been for a greater interest in Pharmacy Week; it is safe to say that the results have been correspondingly good. Comparatively few pharmacies are successful business propositions without the inclusion of sidelines; the means in some instances, however, do not bring satisfactory results. The immediate results may be satisfactory or prove profitable in some or many instances, but the effect on the activity at large must be considered; for what may be a success to-day may contribute to the undoing of the business by outside interests that are affected, or it may take away the prop which upheld the structure. As certain as the benefits derived from pharmacy are ignored just so certain will the

drug business suffer. In by far the greater number of stores it is necessary to increase the volume of sales by selling merchandise; the people can be made to understand that necessity and also the conveniences afforded them, but they should not be kept in ignorance of why medicines should only be dispensed by qualified pharmacists; what State pharmaceutical associations indirectly do for them; why every pharmacist should be a member of the AMERICAN PHARMACEUTICAL ASSOCIATION of which organization it has recently been so emphatically said:

"Its existence has been and is practically unknown to the great public whose interests it has so faithfully tried to serve, and sadder still to state, its existence and purposes are but indifferently well known even to the great mass of retail druggists who receive a direct daily and almost hourly profit from its contributions to the art and science of pharmacy. If there is discredit in this, it rests upon those who are either too blind to see or too selfish to confess their indebtedness to the influence upon which their very business life depends."

Therein is an opportunity for a series of Pharmacy Weeks throughout the year and examples for those who should be members of the AMERICAN PHARMACEUTICAL ASSOCIATION and do their part in the promotion of pharmacy.

Science has added years to the span of human life and improved hygienic conditions—pharmacy as a science and business contacts with the public. In years gone by (to some extent to-day) drug stores were factors in the dissemination of news and formulating of plans far-reaching in their influence; to-day pharmacists have great opportunities for disseminating public health information. What is needed is more publicity for pharmacy, more druggists who will actively express loyalty to pharmacy by doing their part and not letting others do it for them.

Pharmacy Week conveys lessons which extend beyond the activities of the seven days so designated. E. G. E.

WORK OF THE AMERICAN PHARMACEUTICAL ASSOCIATION REPRESENTATIVE OF ALL THE DIVISIONS OF THE DRUG TRADE AND OF PHARMACY.

THE members of the AMERICAN PHARMACEUTICAL ASSOCIATION are familiar with the general program of the annual A. PH. A. meetings and, therefore, know that the papers and discussions concern many different subjects, *but serve a common purpose*—that of advancing pharmacy; however, when an outsider, who has had experience in bringing together widely divergent groups, attends the sessions of the ASSOCIATION, that is to him one of the striking features of the convention. On a number of occasions this has been alluded to by members of pharmaceutical organizations elsewhere during their attendance at the A. PH. A. meetings. The viewpoint was well presented by Surgeon McLauchlin, representative of the U. S. Public Health Service, at the Diamond Anniversary meeting, in St. Louis. At the very beginning of his brief address he remarked that he had attended the several Section meetings and, using his own expression, he had gotten "a tremendous 'kick' out of it;" he was agreeably surprised and felt grateful to the Surgeon-General for having delegated him to this convention.

He expected to find his greatest interest in the Scientific Section, and he profited by the papers read there, but his interest was amazingly increased by attending

other meetings which gave him an idea of the scope of the AMERICAN PHARMACEUTICAL ASSOCIATION, and the thing that challenged his admiration more than anything else was the evident broadening of scope from a purely scientific organization, the broad statesmanship displayed in the laudable effort to bring together many divergent interests which have, however, one objective in common—the advancement of pharmacy. He considered that a most hopeful augury for the future of Pharmacy in the United States and emphasized the opportunities of the AMERICAN PHARMACEUTICAL ASSOCIATION and the possibilities and usefulness of bringing together the divergent interests of the drug trade and of pharmacy for exchange of ideas and working out problems of mutual and general interest.

It should, perhaps, be stated that this particular phase appealed to him because of his interest in the American Public Health Association, in which very widely divergent medical and non-medical groups are brought together in associated activities.

The splendid coöperation with the bodies that had their inception within the AMERICAN PHARMACEUTICAL ASSOCIATION and continue to hold their meetings with the parent organization speaks for their common interests. (To that group has now been added the Conference of Pharmaceutical Association Secretaries.) The fine spirit which annually brings together the representatives of the National Association of Retail Druggists and of the AMERICAN PHARMACEUTICAL ASSOCIATION, and the further evidence expressed in a resolution of appreciation, by the latter, of the splendid efforts of the former, and the continued fraternal relations with other organizations of the drug trade and of pharmacy point out that these divisions can meet on common ground, exchange ideas, solve the problems that concern them, and be of mutual aid in common purposes for general advancement and greater public service. May we ask in this connection for further study of the resolutions printed in the September JOURNAL, A. PH. A., pp. 885–889.

E. G. E.

NOMINEES FOR OFFICERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1928–1929.

President (One to be voted for).

DAVID F. JONES, RETAIL PHARMACIST, Watertown, S. Dak.

GEORGE JUDISCH, RETAIL PHARMACIST, Ames, Iowa.

F. W. MEISSNER, RETAIL PHARMACIST, La Porte, Ind.

First Vice-President (One to be voted for).

C. J. CLAYTON, SECRETARY COLORADO PHARMACEUTICAL ASSOCIATION AND COLORADO BOARD OF PHARMACY, Denver, Colo.

A. W. PAULEY, PRESIDENT MISSOURI PHARMACEUTICAL ASSOCIATION AND ST. LOUIS COLLEGE OF PHARMACY, St. Louis, Mo.

W. P. PORTERFIELD, RETAIL PHARMACIST, Fargo, N. Dak.

Second Vice-President (One to be voted for).

SAM A. WILLIAMS, RETAIL PHARMACIST, Troy, Ala.

W. H. ZEIGLER, PROFESSOR SCHOOL OF PHARMACY, MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, Charleston, S. C.

E. V. ZOELLER, RETAIL PHARMACIST, Tarboro, N. C.

Members of the Council (Three to be voted for).

H. C. CHRISTENSEN, SECRETARY NATIONAL ASSOCIATION BOARDS OF PHARMACY, Chicago, Ill.

H. A. B. DUNNING, RETAIL AND MANUFACTURING PHARMACIST, Baltimore, Md.

R. P. FISCHELIS, SECRETARY NEW JERSEY PHARMACEUTICAL ASSOCIATION AND NEW JERSEY BOARD OF PHARMACY, Trenton, N. J.

S. L. HILTON, RETAIL PHARMACIST, Washington, D. C.

C. W. JOHNSON, DEAN SCHOOL OF PHARMACY, UNIVERSITY OF WASHINGTON, Seattle, Wash.

J. A. KOCH, DEAN SCHOOL OF PHARMACY, UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa.

W. F. RUDD, DEAN SCHOOL OF PHARMACY, MEDICAL COLLEGE OF VIRGINIA, Richmond, Va.

EDWARD SPEASE, DEAN SCHOOL OF PHARMACY, WESTERN RESERVE UNIVERSITY, Cleveland, Ohio.

L. L. WALTON, RETAIL PHARMACIST, Williamsport, Pa.

SCIENTIFIC SECTION

TEMPERATURE REGULATOR.*

BY PAUL S. PITTENGER.

Constant temperature is one of the most important requirements, necessary to obtain accurate results with the various frog, gold fish and isolated uterus biologic assay methods.

In three published papers I described apparatus for automatically controlling and maintaining the temperatures, of water-baths, above or below that of the ordinary room.[1,2,3]

Each of the forms of apparatus described in these papers gave very satisfactory results and was used in our laboratory for several years. During the time they were in operation, however, their limitations were studied with the result that details were noted in which improvements could be made. These improvements are incorporated in the apparatus in use in our laboratory at the present time, descriptions of which follow:

CONSTANT TEMPERATURE-BATH, SPECIALLY DESIGNED FOR FROG AND GOLD FISH EXPERIMENTS FOR MAINTAINING A CONSTANT TEMPERATURE BELOW OR ABOVE THAT OF THE ROOM.

There are many forms of thermo-regulators on the market by which the supply of gas or electricity may be automatically controlled in such a way as to maintain constant temperatures in water-baths, hot air ovens, incubators, etc. Most of these, however, are adapted for maintaining temperatures *above* that of the ordinary laboratory or room.

Biologic assays on frogs and gold fish must be carried out at a temperature of 20° C. For example, the "official" description of the assay for digitalis, strophanthus, and squills contains the following statement:

> "The day before the frogs are to be used, a sufficient number should be taken from the storage tanks and placed in a tank, the temperature of which is approximately 20° C. One hour before the assay, they are weighed to within 0.5 Gm. and placed in wire cages or containers in a tank containing water to a depth of about 1 cm. (1/2 inch), the water being kept at a uniform temperature of 20° C. during the assay."

As the temperature of many laboratories is above 20° C. during the summer months and below 20° C. during the winter, it is necessary, in order to comply with the official requirements, to have some form of apparatus by which it is possible to automatically keep a water-bath at a constant temperature of 20° C. for 24 hours.

---

* Scientific Section, A. PH. A., St. Louis meeting, 1927.

[1] "A Constant Temperature-Bath for Maintaining Temperatures Lower than That of the Room," by Paul S. Pittenger, JOUR. A. PH. A., 5, 1261 (1916).

[2] "An Improved Apparatus for Testing the Activity of Drugs on the Isolated Uterus," by Paul S. Pittenger, JOUR. A. PH. A., 7, 512 (1918).

[3] "Temperature Regulator," by Paul S. Pittenger, JOUR. A. PH. A., 11, 338 (1922).

The apparatus described below has been in use in our laboratory for some time and has proven entirely satisfactory.

The complete apparatus is shown in Fig. 1. Figure 2 is a graphic drawing showing the arrangement of the frog cages, thermostat, immersion heater and stirrer within the constant temperature-bath. Also the arrangement of the solenoid valve, ice-water reservoir and method of connecting with circulating ice-water system. The labeling of the corresponding parts is the same in both figures and will serve to illustrate the following description:

Briefly summed up this apparatus consists of a metal tank (*1*) used as a water-bath which is provided with two angle-iron supports (*2*), $^1/_2$″ below the surface of the water, on which the small cages (*3*) for holding the frogs may be placed.

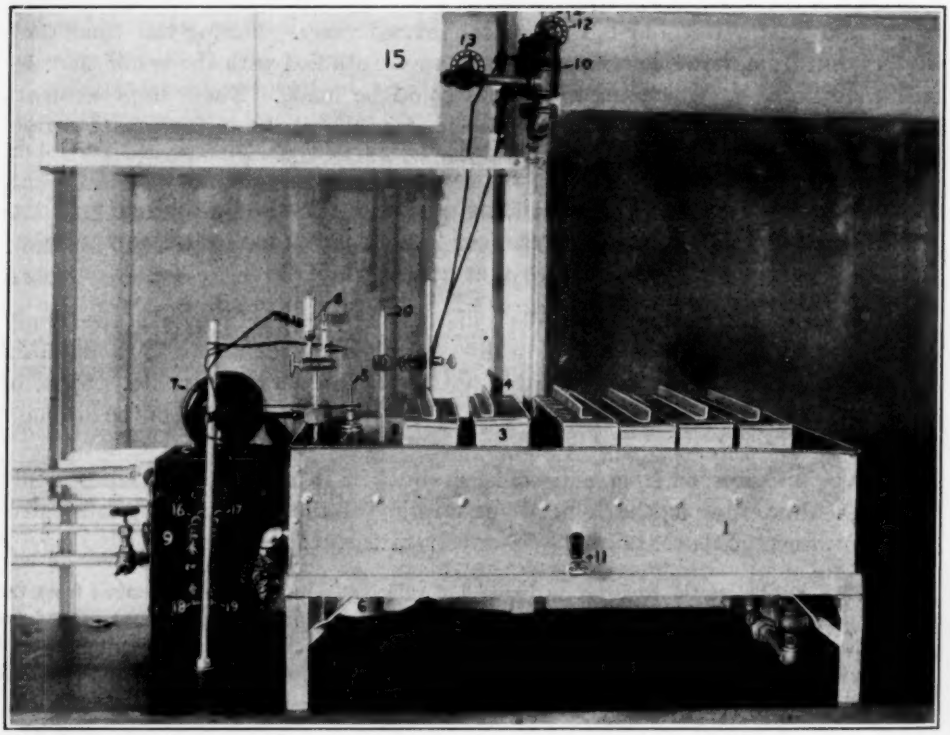


Fig. 1.—Shows the constant temperature-bath, with the individual frog cages in place Arranged for maintaining constant temperature below that of the room.

In the apparatus shown there are six cages of seven compartments each. For details of the construction of these cages see Fig. 3. Each of the seven compartments of the cage are approximately 3″ x 3″ x 3″. The cages, partitions between the compartments and hinged lids are of galvanized iron while the bottoms of the cages are made of $^1/_4$″ mesh wire screen in order to permit the water to rise to the level of the top of the overflow pipe which is $^1/_2$″ above the angle iron support for the cages. In other words, when the cages are placed on the angle iron support within the tank the water is $^1/_2$″ above the wire screen bottom of the cages. Each cage has seven individual lids the size of the top of each compartment, num-

bered consecutively. The pieces of angle iron (*4*) are used to prevent the frogs from opening the lids and escaping.

When the tank is used for gold-fish experiments a perforated metal shelf is placed about 3″ below the surface of the water for supporting the beakers containing the solutions of the drug in which the fish are placed.

In the one corner of the tank is a turbine stirring device (*5*) dipping into the water, the bottom end of which extends to the bottom of a reservoir (*6*) which is attached to the bottom of the tank. The turbine stirrer is driven by a motor (*7*) which lifts the water from the bottom of the reservoir to the top of the tank. This keeps the water within the tank in constant circulation and thus maintains an even temperature throughout the bath.

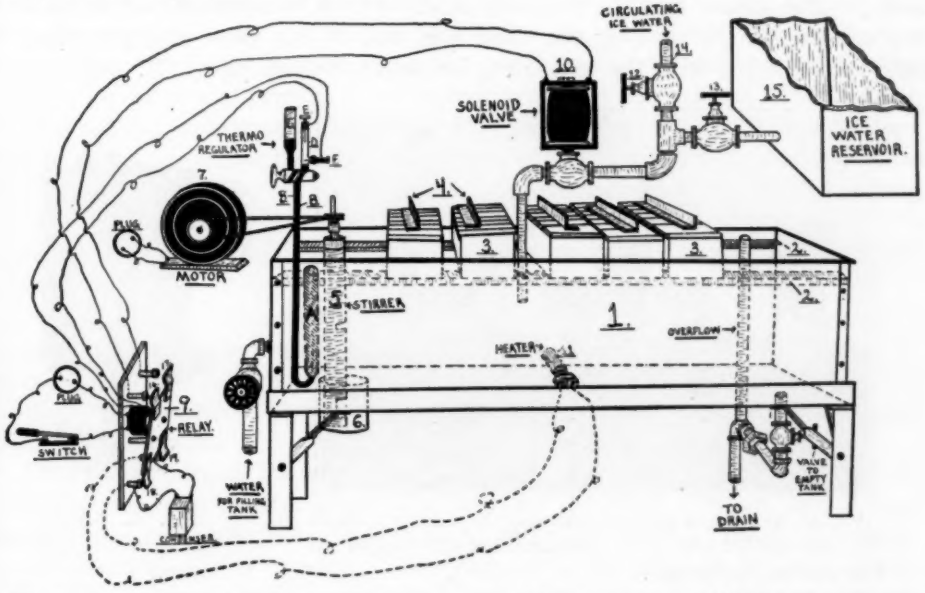


Fig. 2.—Graphic drawing showing the arrangement of the apparatus within the constant temperature-bath and method for connecting the thermo-regulator (*8*) with the relay (*9*) and the solenoid valve (*10*). The dotted lines show the method of connecting the relay with the heater (*11*) when the solenoid valve is disconnected.

In the same end of the tank there is a toluol-mercury thermostat (*8*) which dips into the water and is connected electrically with a relay (*9*). The relay is so arranged that in the summer it may be connected electrically with a solenoid valve (*10*) and in the winter with an electric immersion heater (*11*).

During the summer months when an experiment is to be conducted the toluol-mercury regulator is adjusted to the maximum temperature which we desire to maintain as described later and as soon as the water in the bath rises to this temperature the toluol expands sufficiently to "make" an electrical contact between contact points (*16* and *17*) which are connected with the coil of the solenoid valve (*10*) which releases the ice water, from the ice-water reservoir or circulating ice-water system, and thus the temperature of the water in the tank is lowered.

As the contents of the water-bath become cooler, the toluol in the thermostat

contracts and the electrical circuit is broken, thereby automatically shutting off the ice-water supply until the temperature once more rises to the maximum which we desire to maintain.

In our plant we have circulating ice water for drinking purposes which is cooled by an ice machine in the engine room. Through the day while this circulating ice-water system is in operation, we utilize it for cooling the tank and thus avoid the necessity of making and storing ice water for this purpose. At night, however, this circulating system is not in operation and it is, therefore, necessary to provide a means of supplying ice water during this time. This is provided for by the insulated ice-water reservoir (*15*). As the U. S. P. method requires that the frogs be maintained at a constant temperature at least twelve hours before the assay, it is necessary that the temperature of the tank be automatically controlled day and night. By opening the valve (*12*) and closing valve (*13*) the solenoid valve is connected with the circulating ice water through pipe (*14*). By closing

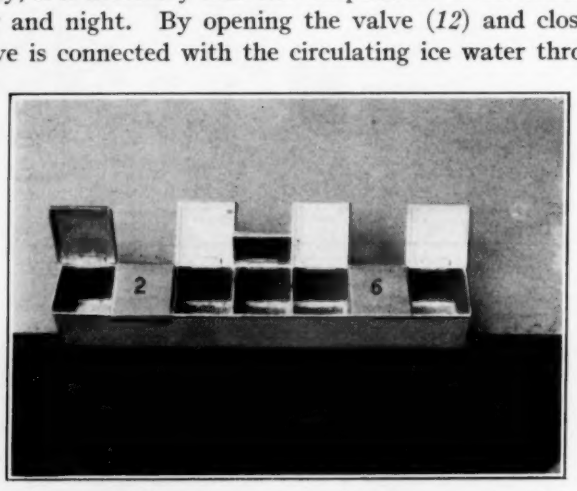


Fig. 3.—Individual frog cages showing the manner in which they are divided into seven compartments with hinged lids and wire-screen bottoms.

Fig. 4.—Cutler-Hammer Solenoid Valve.

valve (*12*) and opening valve (*13*) the solenoid valve is connected with the insulated ice-water reservoir (*15*).

During the winter months the electrical connection between the relay contact points (*16* and *17*) and the solenoid valve is removed and the relay contact points (*18* and *19*) are connected with the electric immersion heater (*11*). After the connections are thus made, as soon as the temperature of the water-bath rises to that at which the regulator was "set" the toluol expands sufficiently to "make" an electrical contact which causes the relay to "break" the current flowing to the electric immersion heater. As the contents of the water-bath become cooler the toluol in the regulator contracts and the electrical circuit to the relay is broken. The relay then automatically "makes" the contact which allows the current to again flow to the immersion heater until the temperature once more rises to the maximum which we desire to maintain.

The construction of the toluol-mercury thermostat is shown in Fig. 2. That portion of the glass tube which is lightly shaded represents toluol (*A*) and the black portion (*B*) represents mercury. In order to adjust the thermostat so that it

will throw the relay at 20° C. the two reservoirs *C* and *D* are filled with mercury, the stop-cock placed in the position shown and the bulb (*A*) placed in a water-bath. The temperature of the bath is increased until the surface of the mercury just touches the platinum contact wire *E*. The stop-cock is then turned to the opposite position (connecting *C* and *B*) and the temperature of the bath adjusted to exactly 20° C. At exactly 20° C. the stop-cock is again turned to the original position.

The thermostat will then be adjusted so that the mercury will automatically make the connection between the contacts *E* and *F* thus "making" and "breaking" the circuit flowing to the coil of the relay which in turn automatically "makes" and "breaks" the circuit to the heater. Immediately upon completion of an experiment the stop-cock of the thermostat should be turned so that the reservoir *C* is connected with *B*. As the temperature of the water-bath falls to the room temperature the toluol in bulb *A* contracts and mercury from reservoir *C* passes into *B*. When the apparatus is to be used again the stop-cock is left in this position while the temperature of the tank is being raised to 20° C. As the temperature of the water in the bath increases the toluol expands and forces a portion of the mercury back into the reservoir *C*. The temperature should be carefully watched and at exactly 20° C. the stop-cock again reversed so that reservoir *D* is connected with *B*. The thermostat will then automatically maintain the temperature at 20° C.

The platinum contact point *F*. is connected electrically with the one side of the coil of the electro-magnet of the relay while the contact point *E*. is connected with the one side of the switch, while the other side is connected with the one side of plug *30*. The other side of the plug is connected with the other side of the coil of the relay magnet.

Before connecting the coil of a relay directly with a 110-volt circuit as described above, care should be taken to see that the relay is of the proper type. Many of the stock relays although made to make and break a 110- or 220-volt circuit are equipped with operating coils made to be operated by a 6-volt circuit. A 110-volt circuit would burn out such a relay. With a relay of this type the coil should be connected with a storage battery or transformer.

With a toluol-mercury thermostat as described it is not advisable to pass a 110-volt lighting circuit through the mercury. The relay used in this apparatus, therefore, is a stock Cutler-Hammer Relay No. 232 (with the contacts normally open) which has the coil so constructed that it is satisfactory for continuous duty and may be connected directly to the 110-volt circuit. Although the voltage remains the same, the coil reduces the amperage sufficiently to allow the use of the mercury thermostat.

The relay must be of the type shown in Fig. 2 which has *four contacts* so arranged that two (*16* and *17*) will break a contact when the magnet is active.

In the summer months the solenoid valve is connected with contacts *16* and *17* so that when the mercury in the thermostat closes the circuit to the coil of the relay, the relay will "make" the circuit through these two contacts to the solenoid valve, thus releasing the ice water.

During the winter months the wires between the valve and contacts *16* and *17* are disconnected and wires from contacts *18* and *19* connected. With this

"hook-up" when the mercury in the thermostat closes the circuit, the coil of the relay will "break" the circuit to the heater.

As the heater consumes 500 watts a considerable spark is generated at the make and break of the relay unless a condenser is connected with the two contact points. A condenser of a suitable size will absorb the spark and prevent the contact points from pitting and sticking.

CONSTANT TEMPERATURE-BATH, SPECIALLY DESIGNED FOR ISOLATED UTERUS EXPERIMENTS, FOR MAINTAINING A CONSTANT TEMPERATURE ABOVE THAT OF THE ROOM.

The details of the construction of an apparatus for isolated uterus experiments and a device similar to the above for automatically maintaining a constant temperature bath for Pituitary Assays was described by the author in a former paper.[1]

RESEARCH PHARMACOLOGICAL LABORATORIES,
SHARP & DOHME, August 8, 1927.

THE COMPARATIVE PHARMACOLOGIC ACTION OF EPHEDRINE AND ADRENALIN.

BY L. W. ROWE.

Although the active alkaloid ephedrine was first isolated in pure form from the Chinese drug *Ma Huang* by Nagai (1) in 1887 and some of its pharmacological properties reported upon by Miura (2) in the same year, it was not until recently that this alkaloid of *Ephedra vulgaris* has attracted attention from the medical profession. Amatsu and Kubota (3) first revived the study of this alkaloid, in 1918, but the widespread publication of Chen and Schmidt (4, 5, 6) and of Chen (7 to 18) in the past two years has been chiefly responsible for the clinical interest. Other pharmacological articles by Japanese and German workers are those by Fujii (19, 20) and Nagel (21).

Chemically the empirical formula of ephedrine (22, 23, 24) is $C_{10}H_{15}ON$, while that of adrenalin is $C_9H_{13}O_3N$, and structurally ephedrine is $C_6H_5CHOH.CH.CH_3.NH.CH_3$ while adrenalin is $C_6H_3(OH)_2CHOH.CH_2.NH.CH_3$.

The first reports of the practical use of this drug in modern therapeutics have been made recently by Miller (25), by Fetterolf and Sponsler (26), and by Rowntree (27). Later clinical reports have been made by Thomas (28), by MacDermott (29), by Miller (30), by Gaarde and Maytum (31), Jansen and Kreitman (32) and by Leopold and Miller (33). There seems to be no doubt about the drug possessing considerable merit.

However, in the preliminary pharmacological and clinical reports the impression is given that this new drug should very largely supplant adrenalin for two main reasons, the first being its prolonged action and the second its action after oral administration. It is the purpose of this paper to report pharmacological experiments comparing the action of these two drugs in various ways with the belief that these tests will show that there may be a definite place in therapeutics for ephedrine but that it will not replace adrenalin.

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[1] "An Improved Apparatus for Testing the Activity of Drugs on the Isolated Uterus" (Second Paper), by Paul S. Pittenger, Proceedings of The Pennsylvania Pharmaceutical Association, 1927, *American Journal of Pharmacy*, Sept. 1927.

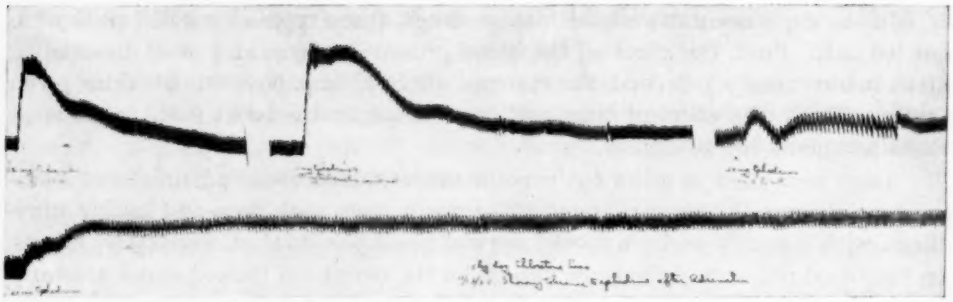
In the experimental work with these drugs, three types of parallel tests were carried out. First, the effect on the blood pressure of large and small doses when given intravenously. Second, the systemic effect of large doses of ephedrine given orally. Third, the effect of large and small doses on the heart itself, when such doses are given intravenously.

Dogs were used in all of the experiments and chloretone administered intraperitoneally was the general anæsthetic since it gives such deep and lasting anæsthesia with a steady and practically normal blood pressure. Comparative effects, on the blood pressure of the same animal, of the two drugs (tested under as nearly similar conditions as possible) may be tabulated very briefly as follows:

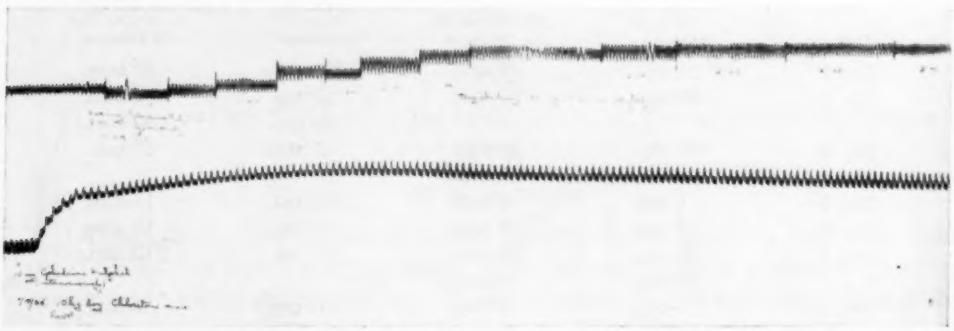
TABLE No. I.

Dog.	Dose of ephedrine.	Maximum rise in pressure.	Dose of adrenalin.	Maximum rise in pressure.
No. 1	10 mg.	10 mm.	.01 mg.	20 mm.
No. 2	50 mg.	19 mm.	.10 mg.	32 mm.
			.50 mg.	50 mm.
No. 3	100 mg.	28 mm.	.01 mg.	32 mm.
No. 4	100 mg.	20 mm.		
No. 5	1 mg.	6 mm.	.01 mg.	17 mm.
No. 6	10 mg.	39 mm.	.01 mg.	19 mm.
No. 7	50 mg.	64 mm.	.01 mg.	15 mm.
	10 mg.	6 mm.		
No. 8	5 mg.	6 mm.	.01 mg.	9 mm.
	100 mg.	22 mm.		
No. 9	10 mg.	9 mm.	.05 mg.	6 mm.
	100 mg.	2 mm.	.10 mg.	22 mm.
No. 10	1 mg.	3 mm.		
	5 mg.	6 mm.	.05 mg.	42 mm.
	100 mg.	31 mm.		
No. 11	100 mg.	16 mm.	.10 mg.	31 mm.
	200 mg.	None (after adrenalin)		
No. 12	100 mg.	19 mm.		
	10 mg.	9 mm.		
No. 13	5 mg.	6 mm.		
No. 14	20 mg.	1 mm.	.02 mg.	40 mm.
			.01 mg.	20 mm.

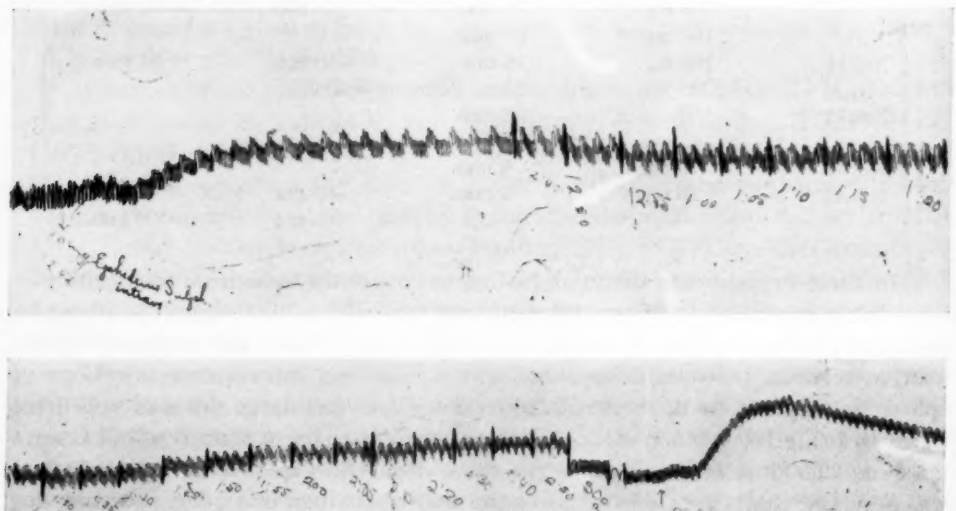
In these experiments the more lasting action of the ephedrine was quite evident, but it was much less powerful, requiring from 100 to 1000 times the adrenalin dosage to produce equivalent effects on the same dog. There was no definite quantitative relation between dosage and effect following intravenous injections of ephedrine sulphate as there is with adrenalin since very large doses of ephedrine failed to bring forth much more rise in pressure oftentimes than resulted from a much smaller dose when given to the same dog. Also in several experiments it was observed that after doses of adrenalin such as .02 mg. or .05 mg. the same dog showed a tolerance to ephedrine sulphate and failed to react to large doses except to a very slight degree. However, adrenalin always reacted vigorously even after large doses of ephedrine. Tracings No. 1, No. 2, and No. 3 show the comparative pressor action from intravenous doses of the two drugs and also the tolerance to ephedrine. Tracings No. 1, No. 2 and No. 3 follow:



Left to right, top row: .02 mg. Adrenalin intrav.; 10 mg. Ephedrine and .01 mg. Adrenalin combined. 20 mg. Ephedrine Sulphate. Tolerance. Lower row: 20 mg. Ephedrine Sulphate intrav.



Upper row: 800 mg. (.8 gm.) Ephedrine Sulphate given orally at 11:10 A.M. Blood pressure taken every 20 min. to 3:00 P.M. Dog came out of anæsthetic slightly. Lower row: 10 mg. Ephedrine intrav. before oral dose.



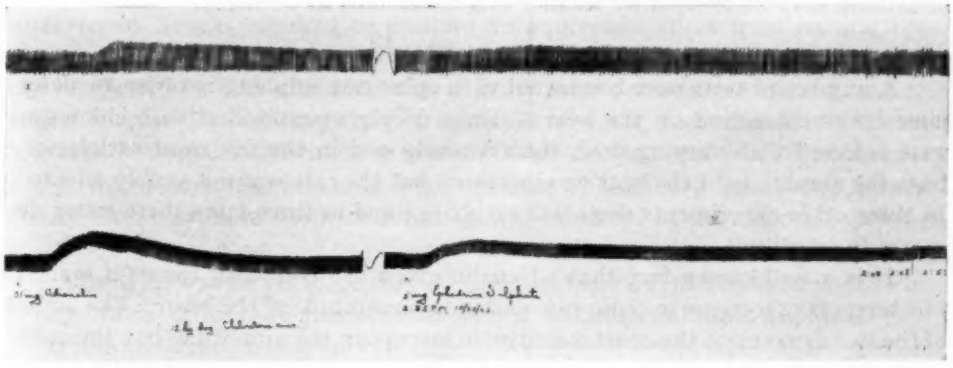
Upper row: 10 mg. Ephedrine Sulphate intrav. Lower row: 1000 mg. (1.0 Gm.) Ephedrine Sulphate given orally, followed by .01 mg. Adrenalin.

EFFECT OF ORAL DOSAGE.

It has been demonstrated in this laboratory that large doses of adrenalin do not produce appreciable systemic reactions in normal animals when such doses are given per stomach. This is due partially to the rapid destruction of the adrenalin in the stomach before it can be absorbed and to the prevention of absorption by the powerful vaso-constrictor action on the vessels of the alimentary tract. The drug can be given in solution sublingually with *definite* therapeutic effect.

From pharmacological and clinical reports the action of ephedrine sulphate, even in moderate oral doses, appeared to be definite and beneficial so that some pharmacological tests were made. Four distinct experiments were conducted upon anæsthetized dogs whose susceptibility to ephedrine was tested by a small dose given intravenously more than an hour before the oral dose.

In the first test a 400-mg. dose was given orally and the blood pressure was



Tracing No. 4.

Above: Direct heart action. Below: .01 mg. Adrenalin HCl intrav. and 5 mg. Ephedrine Sulphate.

raised to a maximum of 7 mm. above normal about one and one-half hours after dosing.

In the second test 1000 mg. (1.0 Gm.) was given orally and the blood pressure was raised to a maximum of 8 mm. within one and one-half hours after dosing. This dog showed a rise of 10 mm. in blood pressure from an intravenous injection of 10 mg. given 2 hours previous to the oral dose. This experiment indicates that the intravenous action is more than 100 times as powerful as the oral effect from the same dose.

In the third experiment a dog was starved for 24 hours and a dose of 500 mg. given orally. Within a period of 2 hours and 10 minutes after dosing, the blood pressure failed to show any rise—in fact, a slight fall in pressure occurred soon after dosing, which may have been due to the dog becoming more completely anæsthetized. At the end of the experiment the dog was killed and an examination showed a small amount of food residues in the stomach so that the period of fasting was not as effective as it should have been. This dog was injected with 10 mg. intravenously about 2 hours before the oral dose and the blood pressure was raised 21 mm.

A fourth dog was starved for 24 hours and then anæsthetized with chloretone. A 10-mg. dose of ephedrine sulphate was given intravenously and caused a maximum rise in pressure of 35 mm., thus showing the marked susceptibility of this dog to the drug. One hour later, when the pressure had returned to normal, an oral dose of 800 mg. was given. The blood pressure was observed for 4 hours and rose 14 mm. within about 2 hours. The higher pressure was partly maintained by the animal beginning to come out of the anæsthetic about 2 hours after dosing. In this experiment the drug was much more than 80 times as powerful when given intravenously as when given orally. Autopsy showed the dog's stomach to be free from food residues. (See Tracings Nos. 2 and 3.)

These experiments show that ephedrine is not absorbed rapidly enough from the stomach to produce a systemic effect upon the blood pressure which is at all comparable to its action intravenously, but that it does act appreciably when given in large doses orally. Apparently specific effects such as the broncho dilator action in asthma may be elicited by smaller oral doses such as 50 mg.

EFFECT ON HEART.

A number of tests were conducted with ephedrine sulphate in order to determine its direct action on the heart. Dogs deeply anæsthetized with chloretone were injected with varying doses intravenously and in the five most satisfactory tests the amplitude of the beat was increased but the rate was not visibly affected. In three other experiments there was no change and in three more there was a decrease in amplitude.

It is a well-known fact that adrenalin given intravenously causes a marked but temporary increase in pulse rate and in the amplitude of the beat. The action of the two drugs upon the heart is similar in increasing the amplitude but the ephedrine does not accelerate the heart even in very large doses to the extent that small doses of adrenalin do. (See Tracing No. 4.)

LOCAL EFFECTS.

The mydriatic action of ephedrine which was first observed by Miura was confirmed by tests on the rabbit's eye. However, 1% to 5% solutions of the drug must be used. Adrenalin has a slight mydriatic action.

When applied locally to mucous membranes the vaso-constrictor action was not more marked from a 5% solution than is caused by a 1 to 2000 solution of adrenalin though it was more lasting. Ephedrine has no local anæsthetic action and because of its weaker vaso-constrictor action is not successfully used with local anæsthetics, while adrenalin is a very useful addition to local anæsthetic solutions that are to be used hypodermically. When tested on the isolated virgin guinea-pig uterus very dilute solutions such as 1 to 100,000 caused a marked but not a maximum contraction of the muscle. The drug may therefore possess some oxytocic action in therapeutics but histamine contracts the isolated uterus very effectively in dilutions of 1 to 20,000,000 and yet it is not valuable clinically.

Neither drug has any appreciable germicidal action.

TOXICITY.

Comparative tests were conducted upon white mice, the injections being given intraperitoneally so that absorption would be necessary and yet could be easily

accomplished. The M. L. D. of ephedrine sulphate was found to be about 400 mg. per Kg. body weight (0.4 mg. per Gm.), while that of adrenalin chloride was found to be 8 mg. per Kg (0.008 mg. per Gm.) The ratio of toxic doses by this method is as 50 is to 1 and adrenalin is consequently fifty times as toxic as ephedrine by hypodermic injection. Since adrenalin is fully 100 times as active its factor of safety is consequently twice as great. Orally, both drugs are practically non-toxic as they are not absorbed rapidly enough to produce a toxic action.

SUMMARY.

In this accumulation of the pharmacological data it has been shown that the qualitative action of ephedrine is similar to that of adrenalin in several respects, but that it is much less powerful. The more lasting action of the ephedrine is apparent when given hypodermically in comparatively large doses. The claims of the value of the new drug for oral administration would seem to be somewhat exaggerated, since for a systemic action such as a rise in blood pressure more than 100 times the intravenous dose is required to produce an equivalent effect from an oral dose. Specific effects in abnormal conditions such as the broncho dilator action in asthma can be elicited by oral administration of fairly large doses such as 50 mg. and this action is more lasting than that of adrenalin given hypodermically. However, it is well known that adrenalin is not effective following oral administration.

A tolerance to the action of large doses of ephedrine administered intravenously after moderate doses of adrenalin was exhibited by several dogs, although it did not always occur. The reverse was not observed in my experiments.

Adrenalin was found to be only 50 times as toxic as ephedrine sulphate when injected intraperitoneally into white mice, but it is fully 100 times as potent.

From the pharmacological experiments reported it would seem highly probable that while ephedrine, though much less active relatively, is similar in some respects to adrenalin yet its indications will be more limited and frequently quite distinctive from those of adrenalin.

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THE LIVING BELLADONNA.

(*Continued from p. 836.*)

METABOLISM.

The belladonna, in common with other green plants, receives a small portion of material from the soil in the form of salts dissolved in the water absorbed. The greater portion of the supply, however, comes from the air. This is not the food of the plant, but the raw material—"the makings of food." Before these materials can become food, much work must be expended upon them.

The food prepared by the plant is not immediately used up, the excess over immediate requirements being stored in various parts of the plant for subsequent consumption. The stored food passes through processes of change and digestion associated with a process of assimilation. A constructive process—anabolism, a destructive or breaking down process—catabolism.

The amount of food material taken in by the belladonna plant from the soil is very small. One hundred grains of the green plant will give only about one grain of mineral matter (ash).

When subjected to analytical processes, the belladonna plant has been found to contain the following elements: hydrogen, carbon, nitrogen, oxygen, sulphur, potassium, calcium, phosphorus, chlorine, sodium, magnesium, iron, aluminum, silicon and, in rare instances, copper.

One would not attempt to build up a plant structure from the "humpty-dumpty" array of elements found in belladonna. Each of the several elements noted renders a service to the organism. The activity of the life elements we now know is connected with the forms of electric energy called catalysis.

"The electric action and reaction of the elements according to modern views are the chief phenomena of the internal functions of life, developed in the presence of oxygen by the energy either of the heat of the earth or sun, or both the heat and light of the sun."—Osborn.

It is beyond our ken to understand why, in the interplay of the foregoing elements, at one time there comes a rose and at another time a solanum.

Carbon, hydrogen, oxygen and nitrogen are elements common to all plants. Where and how these four elements get together to evolve the principles peculiar to the *solanums*, or why at one time these elements make up as atropine, and at another hyoscyamine or hyoscine, and so on, we ask—and await the answer.

Through the circulatory mechanism of the plant a continuous supply of nutritive material is carried to every point where needed. This nutritive matter is in the form of raw material.

The old idea of plant nutrition was a stream of ascending and descending sap through the plant organs. In our present knowledge we find that this takes place through diffusion, which is constantly occurring between contiguous cells in all directions.

Food substances, carbohydrates for example, are found in a soluble traveling or nutritive form—sugar, or in a storage form—starch. By this process food material is translocated from one point to another, to suit the condition of the plant's life.

In the belladonna plant we find at certain points of its structure a greater abundance of carbohydrates in the form of starch or sugar than at other points. The transport of proteins, including alkaloidal bodies, follows a like course. They are found at various points of the translocatory tracts.

In the life history of the narcotic *solanums*, including belladonna, we find the alkaloidal bodies present in greater proportion at one period than at another. The alkaloidal bodies appear in this light as a part of the nutritive material of the plant—food for the plant, poison for man.

In the case of belladonna and other plants, surplus food is stored in the root for use of the new plant. The surplus food of the plant exists either in a condition for traveling or for storage. In the carbohydrates the surplus exists as sugar, glycerine or as starch. In belladonna, starch is the most abundant of the reserve food supply. The amount of starch present is dependent upon the period of vegetation. According to Brandes, first-year plant roots contain less starch in the spring than in the autumn. The older roots are rich in starch both in the spring and autumn, but contain less in summer.

Carbohydrates, other than starch, are found stored in the cells of belladonna, especially in the resting stage. Of these may be mentioned wax and oily substances, which are present in the seeds in sufficient quantity to impede propagation unless removed by solvents.

Nitrogenous materials, including the alkaloidal compounds, are a stored reserve in plants. The alkaloids are also found stored in the seeds of belladonna and other solanums.

Roots well filled with starch give a higher yield of alkaloid than those which are non-starchy. As the season of the growth of the plant wanes, the amount of alkaloid present in the leaf and stem declines, whereas the amount of alkaloid present in the root is increased. Hence, the growers gather the leaf at the flowering time, and the roots in the fall and winter, during the resting stage.

The herbalists, who were the fathers of pharmacognosy, taught that plant life was governed by the movement of the planets, and in digging roots and gathering herbs they were guided by the signs of the zodiac. They were not so far wrong, for we now gather the leaves and dig the roots of belladonna according to the almanac.

The process by which the reserve stores of food in the plant is fitted for transportation to, and utilization by the growing and developing plant cells, or from an insoluble to a soluble form, may be termed digestion, from its analogy to similar processes in the animal body.

In these processes of digestion, as carried on in the belladonna plant, we believe that the poisonous so-called alkaloids are elaborated.

The process of digestion in plants in part takes place in the protoplasm of the cell. It is carried out by agents secreted by the plant in the form of enzymes—soluble ferments.

Ordinarily, ferments are inactive at low temperatures. Their activity increases as the temperature is raised to their optimum point of action (30 to

The Belladonna Plant.

45° C.). Above this point they gradually become inactive, and at 60 to 75° C. their activity is destroyed.

In the belladonna plant the enzymes are active at low temperatures. The seeds will sprout at points slightly above 5° C., and the plant will grow at an air temperature of 10° C. The whole round of changes taking place in the living plant is spoken of as metabolism.

The protoplasmic construction process is described as anabolic. The processes which are concerned in the decomposition of protoplasm, are termed catabolic.

In the anabolic processes the protoplasm is constantly reconstructing itself, using up nutritive substances in the construction of new cells—growing. Side by side with the anabolic processes there is going on a decomposition of the protoplasm, the products of which are again used in the reconstruction of the protoplasm,

or they may remain unaltered. So long as the plant is living, the protoplasm is continuously undergoing reconstruction and decomposition.

Among the products of catabolic change are the cell walls of woody or corky fibre. In the belladonna plant this woody fibre is not apparent until after the first year's growth, and then only in small amounts.

A plant, in the ordinary sense, has no excreta. Whatever it absorbs from the soil, except water, it retains. The matter deposited in the bark of trees and in leaves about to be shed may, however, be considered as dead matter—excreta.

Many substances formed during the catabolic changes seemingly have no direct bearing upon the life processes. These are termed by-products of metabolism, and are varied in character, some being nitrogenous and others not. In the study of the belladonna plant we are greatly interested in the nitrogenous by-products—the alkaloids.

It has not been found that alkaloids are in any way able to minister to the nutrition or growth of the plant, though their nitrogen is an organic combination. If the plant is supplied with nitrogen solely in alkaloidal combination, it is starved.

In the belladonna plant the alkaloid is stored in the seed in fairly large proportion. There is an apparent decrease of alkaloid during germination. This would seem to show that the alkaloid formed a part of the nutriment of the seedling.

If we consider the alkaloids as excretions, we are met with the fact that they decrease in the leaf and stem of the plant as these parts prepare to be cast off. The alkaloids increase in the roots as they approach the so-called resting stage.

The odorous substances of the belladonna plant may be classed as by-product.

The products of metabolism, or plant chemistry, in a simple plant like belladonna, are quite formidable.

They include starch, sugars, including honey and saccharates, cellulose, gums, wax, resins, mucilages, asparagin, albumin.

Coloring matters: chlorophyl, anthocyanin purple, xanthophyll yellow, atrosin coloring principle of the root.

Alkaloids: atropine, hyoscyamine, belladonine, atropamine, apatropine.

Acids: (chiefly combined with bases), acetic, malic, chrysatropic (flourescent), succinic, prendatorin (Brandt), phyteumscolla (Brandt).

Salts: potassium, sulphate, nitrate, phosphates, chlorides, hydrochlorates, oxalates, malates magnesium malate, sodium chloride, phosphate.

Ammonium salts: calcium malate, oxalate. Quite characteristic of belladonna is the presence of clusters of crystals of calcium oxalate in cellular spaces of the leaf, apparently walled off from the vital processes of the cells. Odoriferous principles in the plant as a whole, and aromatic bodies in the flower.

It is possible that some of these substances may be formed as a result of analytic manipulation, but it is quite true that the products of cellular activity in a plant are complex and numerous. Some of the products enumerated are peculiar to the solanums, others seem to belong solely to belladonna.

PROTOPLASM.

Microbes, kings, cabbages, roses, belladonna and all living creatures, seem to be built up of a curious slime stuff—protoplasm.

A plant like belladonna seems to be a multiplication of jelly-like cells—protoplasm—strung together to form root, stem, branch, leaf and flower. Through some peculiar arrangement of cells, and through some peculiar power therein, comes a solanum and a belladonna.

No one has gotten very far in solving the riddle of the protoplasmic cell. The chemist can make little headway in attempting to pull protoplasm apart. At the first touch, its life is destroyed, the structure and substance are changed.

About all we know is that it is colloidal. Under the microscope there is not much to be seen—a droplet of soft jelly, cloudy with specks. Perhaps some day we may be able to see the arrangement of the atoms in the molecules, measure the play of the corpuscles, and witness the working of interatomic energy in the living protoplasm. But this seems far away. Meanwhile, all we can see is a drop of jelly.

Somewhere in the cell cavity there is found a peculiar portion known as the nucleus.

The protoplasm apparently is the center of all the activities which the plant manifests. It assimilates food, it can build up dead matter into living molecules, and transform foreign matter into substance like its own. It carries out all of the processes necessary for life, growth and reproduction. It receives the impressions and regulates the responses which the plant makes to environment. "We might go so far as to say that protoplasm can think."

The whole life movement of the plant, internal and external, is regulated and controlled through its protoplasmic "slime."

Physically and chemically we could say that the "life stuff" of a bacterium, a lily or a solanum, a whale, a worm or a philosopher, was alike—but there must be a vast difference.

Osborn ("Origin and Evolution of Life") attributes the remarkable response of the plant organism to environmental influence to physicochemical causes, centering in the nuclei or "heredity-chromatin."

Certain of the solanums, and in particular the belladonna plant, have been characterized as "dull and sluggish." It has been intimated that some of their characteristics, such as tendency to shady, protected surroundings, unattractive appearance, and rather repellent odor, are indications of a lack of characters present in many other plants.

ENVIRONMENT.

We know that the protoplasm seems peculiarly influenced by environment; it does not spontaneously adapt itself to changed conditions.

It has taken long ages for belladonna to obtain a foothold in the few regions which are now its habitat. It has come to be belladonna through a long struggle against the powers of earth and sky. In the process of sorting and sifting it has come out belladonna.

The tendency to change, to mutate, to cross-breed, does not seem to be present in belladonna. In this respect, so far, it has resisted man's efforts to "improve" by breeding or cultivation. It has resisted extinction, even meeting the ruthless efforts of the modern "root diggers."

While its range is limited, it seems to have well-established powers of adap-

tation. It can maintain existence against many odds. It has manifest control over food and water supplies, atmospheric and physiochemical energies. It has power to maintain interaction with nature, propagate itself, breed true. It lives, thrives and produces alkaloidal substances with unfailing regularity.

Osborn ("Origin and Evolution of Life") formulates the fundamental biologic principle of development as follows:

> "In each organism the phenomena of life represents the action, reaction and interaction of four complexes of physiochemical energy, namely those of (1) the inorganic environment (air, light, soil, moisture); (2) the developing organism (protoplasm and body chromatin); (3) the germ or heredity chromatin, and (4) life environment. Upon the resultant actions, reactions and interactions of potential and kinetic energy in each organism, selection is constantly operating wherever there is competition with the corresponding actions, reactions and interactions of other organisms."

The belladonna has come to be, and remains, belladonna through a webwork of life energy. With a variation of the environment, a modification of form structure and other characteristics would be expected.

Certain of the allied solanums are climbing plants, some of the closely related Daturas are shrubby under one environment and attain to tree form amid other surroundings. Belladonna might do the same.

Differences have been observed in belladonna growing in France and Spain as compared with that found in the central regions of Europe. The structure of the belladonna plant growing in the Vosges and Black Forest differs from that growing in the Austrian Alps.

In England, difference of structure in the belladonna plant occurs between plants grown in the Northern or Southern regions, and in specimens growing in the open field, in a chalk pit, or under the walls of a ruin.

In the American cultivations of belladonna a difference of form and size of plant, leaf, stem and root, according to the locality where grown, was noted.

Through the influence of changed environment, plus other complexes, there has arisen from ancestral stock the several species of Atropa belladonna now known.

To the influence of environment, in a greater or lesser degree, is due the size of the belladonna plant, the size of the leaf, the size and the shape of the root structure. Environment also, in a measure, has an influence upon the fertility of the seeds, and upon the rapidity of growth and maturity.

There is much that is not yet clear as to the influence of climate upon plant life, and of plant life upon climate.

During the long-gone geologic ages, great forests spread over the world, stabilizing the climate. Man, by destroying the forests, has changed the climate of vast regions of the earth's surface.

We know that a few thousand years ago there was a greater luxuriance of plant life in Europe and in Asia than prevails to-day. We can but believe that our narcotic solanums have been affected in this change.

The influence of environment upon the alkaloidal constituents of the narcotic solanums, we dare not attempt to surmise.

Erlich stated that "environment might so affect the individual metabolic processes as to give rise to modifications of the constitutions of proteins and other vital molecules, sufficient to cause not only physiological and morphological differ-

entiation in the individual, but also become manifested functionally and structurally in the offspring."

The presence of hyoscyamine, atropine, hyocine, daturine and like bodies in the closely related species of narcotic solanums may, in a measure, result from the influence of environment through the ages.

Environment excites a far-reaching influence on the life and growth of a plant. But environment is not the sole factor in the making of a solanum or a belladonna. The germ lies beyond and behind the environment. Through the germ plasm it inherits and transmits the power to adapt itself to changing environment. Through the germ plasm and adaption to environment we may hope that it is moving forward and onward—perhaps to a higher order of mydriatic solanums, a better belladonna.

GROWTH.

The belladonna is an herbaceous perennial. When started from the seed it germinates very slowly. In a cold-frame or greenhouse, under favorable conditions, from six to eight weeks are required. In our climate the seed of belladonna will not germinate when sown in the open ground.

With the swelling of the seed and bursting of the shell, the very fine hair-like root grows downward, and the embryonic stem bearing the cotyledons moves slowly upward. The rather shapeless, veinless leaves unfold, and take on a green color. Slowly new buds are developed at intervals on the stem, from which new leaves are formed.

The movement of growth is slow. The seedlings are very tender and fragile, halting and succumbing under adverse influence of surroundings. The growing and developing plant gradually takes on shape, stems lengthen, branching at intervals. Guided seemingly by a controlling intelligence, short stalked, oval, acutely tapering leaves form alternately below, in pairs above.

The newly formed leaves appear almost tissueless, of a light translucent green, gradually thickening and forming innumerable veins, membranes and cells, on which microscopic hairs appear.

Seemingly sudden, but really in regularity as to stage of growth, at some budding points short-stemmed flowers instead of leaves form. Embryo sacs, sepals, pollen grains, stamens and pistils appear instead of ordinary leaves. Then comes the fruiting stage. The ripened fruit carrying the fertilized seed completes the cycle of growth.

The belladonna plant seems capable of growth in all directions up to the final ripening of its purple berry.

We lack exact information as to the growth of drug plants in respect to influence of conditions which affect their rate of growth, increase in size, weight and more than all—increase or decrease in their medicinal constituents.

With respect to belladonna, and most other drugs, we have only a few general agricultural conclusions. It has been recorded that in certain seasons the crops were either good or bad, attributed at times to excess or lack of moisture, heat, etc.

Accurate methods now available for recording the effect of light, temperature, moisture and other external conditions upon the growth of plants, have not been applied to belladonna. A few crude records made during the author's cultivation

of this plant, seemed to indicate that there were some notable exceptions in regard to its growth when compared with other plants.

Belladonna will grow at 30° F., and its growth will increase up to 70° to 75° F. Above this temperature growth diminishes. Belladonna is evidently habituated to comparatively moderate temperatures. In common with other plants, it grows faster in lessened light, or even in darkness. Experiments made by the author showed that growth during the night was notable, especially if the nights were not too cool, and there was a fair amount of humidity. When shaded, in the manner followed in growing tobacco and pineapple, growth of stem and leaf increased.

Both light and heat increase transpiration, and thus have a tendency to check actual growth.

We have assumed, perhaps erroneously, that the purple color on the stem and leaf stalk of belladonna, in some degree modified the action of light.

Adequate supply of water is, of course, essential to the processes of life and growth in all plants. There must be water to swell new formed cells. Food is transported by and through water. The process of metabolism is carried on in solution. Humidity of the atmosphere checks transpiration and evaporation of water. Growth increases with atmospheric humidity.

There are many conditions which affect the growth of a plant like belladonna, but the influences of temperature, light and humidity are outstanding.

The rate of growth through the life of the plant is not uniform. The new sprout from the root or the seedlings grows slowly at first; having attained a good start, the rate of growth is more rapid. The stems, branch, leaves and flowers form, and growth proceeds up toward fruiting, after which the growth is slower.

Increase in height, in size of branches or leaves, is not necessarily an increase in weight of solid structure. Young growing plants contain above ninety per cent of water.

The root of the belladonna plant increases markedly in weight as the reserve starch food is deposited, and the stem has attained its growth and begins to die down. Branches and stems cut off in gathering a crop of leaves, especially if done before fruiting, are rapidly replaced. Thus two and three crops of leaves can be harvested in one season.

In the American climate the belladonna plant does not grow rapidly, nor attain a large size. Plants from seedlings reach from one and a half to two feet the first year. Plants sprouting from roots may attain a height of three feet, branching to a spread of two and one-half feet. In succeeding years, plants from the root may increase slightly in height, but never reach much above these dimensions.

The belladonna plant is an herbaceous perennial. In a large measure it stores its food in its parts underground, from which new stems, flowers and fruit are produced the next season. As the storage proceeds, the top dies. Except in the top of the root, or corm, no woody fibre is formed. The woody structure increases only slightly with the age of the plant.

Apparently there is no marked symmetry in the structure of the belladonna plant. While there is a general type, no two are alike in structure. Injuries during growth and adaptive adjustment, alter greatly the form, size and shape of structure.

In wooded thickets, amid weeds and shrubbery, a seedling will send up at an angle, a single spindle-like stem, without branches and with few leaves, to reach a place in the light and air. Stems ererging from the rhizome usually go out at an angle instead of straight upward, seemingly so that its branches and leaves may expose a greater surface to the atmosphere.

There are apparent disturbances of growth through internal causes, the nature of which is unknown, whereby there is irregularity of growth, a stunting and unusual arrangment of shape and form of stem and branch, and other odd modes of growth.

The root of the plant, while ordinarily in the first season a single tap-root, will branch and bend to avoid stones or other obstructions, go deeper, or branch sidewise to reach favorable soil. In older plants it will throw out branches where necessary to give the plant a firmer hold.

From year to year the root slowly increases in size, each year adding to its woody cortex. Very old roots tend to take on a cork-like, spongy structure. Except in the rhizome, the belladonna plant forms no permanent tissue.

Only the first stages of food transformation are carried on in the root of the growing plant. The real laboratory lies along the canals of the stem and the leaf.

The juices of the growing plant are acid—said to be acid potassium sulphate, a substance that stimulates osmosis.

In the root of the belladonna plant, starch and the materials needed for the young shoots, are stored through the winter resting stage. This so-called resting stage is not one of inactivity—life proceeds slowly, raw supplies are still taken by the cells, starch and other products received from the stem and branches are slowly transformed into assimilable material, and digestion goes on at a retarded pace.

During the "resting stage" there is an activity looking toward and preparing the starting of shoots, which will be the beginning of a new growth of the stem and branches. The rhizome corm, or undergrowth, on the top of the root is the point from which the renewing stems start.

The alkaloid is present in the root and corm, due in part to the accumulation in the root as the top dies down and sends the alkaloidal bodies to the root. Tests show a slightly greater proportion of alkaloid at the end of the resting stage than at the beginning, thus indicating that they are formed during this stage of the plants' existence.

The suggestion has been made that the poisonous principles are hoarded in the root as a protective against animals who might prey upon the structure. There is no record of any animal attacking the belladonna root. It is not of a nature to attract food-seeking animals, and would not necessarily poison them. The roots, however, are viciously attacked and destroyed by underground worms (cutworms), and the worm escapes unharmed.

REPRODUCTION.

It would be futile, even were the author competent, to attempt to give in detail the methods by which the plants of the group here under survey reproduce themselves.

The belladonna, like other plants of the higher type, reproduces new plants from seed. The formation of the seed begins in the flower.

In the flower, we see inside the purple-lobed bell five slender, curved stalks with rounded heads. These stamens or male parts are covered with pollen "dust," the element of fertilization. The female part a greenish stalk with a two-lobed head, carries the embryo seeds or ovules. At the base of the style are honey-bearing glands.

To reproduce a thrifty belladonna plant, the male pollen must be brought into contact with the female ovules of another plant. This pollen can be carried by the wind, as may be demonstrated by placing a moistened glass over the flower, and inserting the tip of a flower beneath, when the pollen dust will collect on the glass. But by such a process there would be a tremendous loss. Some plants are fertilized by the wind-blown pollen, but probably not the belladonna.

During the sunshine hours of summer, the honey bee, guided in part by the purple flower, but probably more so by the nectar odor, works his way to the innermost part of the flower, and taps the honey-bearing glands. His body carries the pollen grains to the next plant to be visited, and leaves them on the flowers' sticky stigma. This cross-fertilization is one of nature's many sublime accomplishments.

The pollen grains swell, send tubes of active living matter into the embryo sacs, the ovules are quickened, and as cell joins to cell a new plant is born.

In the embryo is packed all the inheritance of the parent (including alkaloid)—all that goes to make a belladonna plant. Under magnification, as it develops, we can see root, shoot, bud and leaf.

In a small enclosed embryo we have many seeds, enclosed in sac form—a berry, at first green, then in turn purple, with wine-like poisonous juice. The ripened fruit and seed dry, fall to the earth, and after a period of rest, the never-ending cycle starts anew.

BELLADONNA SEASON.

"To everything a season," says Ecclesiates. The rhythmatic life of plants is punctuated by the seasons.

With belladonna, in its home, the spring is the time when a fresh start is made. The seeds have been lying in the earth within their envelope; enzymic agents have prepared the food laid by the parent plant for sustenance of the embryo.

As the warm spring moisture seeps in, the seedlings emerge. A new belladonna is born! And there begins the delicate movement of stem and root, leading onward to a full-formed plant.

During the winter, the root of the old plant, buried under the soil, has formed buds on its corm, and transformed its stored food into active nutriment. With the coming of spring, rootlets take in moisture, pressure and action begins, the new stem shoots upward through the soil, the packed leaves of the bud unfold, take on green, and a vigorous belladonna stands before us.

To the lover of nature, the spring awakening or renascence of even so humble a plant as a belladonna, inspires at once a feeling of awe and inspiration. It comes swiftly, surely, gloriously—but is beyond our ken!

As summer comes on, the stem moves upward, branches and leaves take on full strength and maturity. Food is made and passed steadily to growing and storage points; flowers, fruit and embryos form; bees spread the fertilizing pollen;

the fires of life burn brightly—the belladonna is in its glory. Output and income of energy are at their height, in preparation for the seasons to follow.

In midsummer, flowers, green fruit and ripe fruit appear, scattered over the belladonna plant. When the plant stands in flower, its alkaloidal principles are formed, in the greater measure in the leaf.

Autumn is the time of ripening and preparation for the future. Growth slackens and stops; starch, sugar and alkaloid are transported to the root; berries ripen, dry and fall to the earth. The intense activity in stem and branch wanes; leaves and stem surrender their living matter to the plant which bore them.

The green color recedes, fades to brown and yellow, the structure dies and falls to the ground, is seized by bacteria and earth worms, to be made over into nourishing soil for the new plant which is to come. Seed and root are covered by the ashes of the dead top, in preparation for the renewed life of another season.

Winter is low tide in plant life. Activity slackens but does not cease. Within root and leaf slowly stored substances are changed. The embryo in the seed takes on shape, buds form on the root crown. Winter is likewise a time of winnowing, sifting and elimination. Weaklings in seeds and roots succumb, rot and are returned to the elements. The few that survive, among the many that perish, take on vigor for the coming season's eternal cycle.

ISOLATION OF THE OIL AND ALKALOIDS OF STAVESACRE SEED.

(Delphinium Staphisagria).

BY L. N. MARKWOOD.*

Following the investigation on *Delphinium consolida* (13) investigation of the seed of *D. staphisagria*, commonly known as stavesacre, was undertaken to isolate in pure form the oil and alkaloids in order to determine their insecticidal activity.

In the past century various reports of work on the alkaloids of the genus *Delphinium* mainly *D. staphisagria*, have been made. Among these the outstanding contributions have been made by Marquis (14), whose formulas for delphinine, $C_{22}H_{33}NO_{63}$, m. p. "above 120°," and the three other alkaloids he claims to have isolated have been widely copied in textbooks; by Kara-Stojanow (9), who ascribed to delphinine the formula $C_{31}H_{49}NO_7$, m. p. 191.8° (cor.); by Katz (10), who reported no formula or melting point but undoubtedly had the pure alkaloid and performed the first experiments on chemical structure; by Walz (17), who, having at his disposal 50 Gm. of crystallized delphinine (Merck), established the formula $C_{34}H_{47}NO_9$, m. p. 187.5° (uncor.); and by Keller (11), who made no determination of the formula but found the m. p. 187.5° (uncor.) and performed experiments on the constitution.

Since a large part of the success in obtaining pure alkaloids depends on the solvent for extraction, tests were made to determine the suitability of various solvents. Previous investigators had used as solvents alcohol, alcohol with acetic

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or tartaric acids, ether and petroleum ether (to remove fatty matter) followed by alcohol. It was found by trial that petroleum ether alone removes the oil completely, extracts the alkaloids to a satisfactory degree, and at the same time carries along a minimum of impurity. That this direct solubility of the alkaloids in the organic solvent proves their occurrence as free bases is not to be taken for granted, as the oil is a factor in the solubility.

The seed were first stripped of their heavy seed-coats (2) which contain some extractable matter, especially coloring matter, but no alkaloids. To facilitate stripping the seed were softened by immersion in water for 1 to 2 hours. The water was drained off, and the seed were then decorticated in a machine designed by the writer especially for this purpose. The machine consisted essentially of a rotatable wooden cone surfaced with tin grater metal, fitted loosely inside a similarly surfaced hollow block. As the seed fell between the rotating cone and the stationary block the seed coats were pulled off. The material was then dried, and the seedcoats were removed by means of an air separator.

The kernels were coarsely ground in a mill, then washed with petroleum ether to remove expressed oil, and reground to a fine powder, approximately No. 60. This powder was packed in a percolator and extracted with petroleum ether. The powder must be very fine to secure a satisfactory measure of extraction, as the petroleum ether lacks great penetrating power. The percolation was stopped when a test showed practically no oil in several drops of percolate.

The solvent was distilled from the percolate by heating on the water-bath at ordinary pressure. The residue, a brown oil, was dissolved in twice its volume of ethyl ether preparatory to removal of the alkaloids by extraction with sulphuric acid.

Soon after the ether was added a white flocculent substance was deposited on the bottom of the vessel. After the solution had stood over night to permit complete precipitation the deposit was filtered off. This deposit showed double refraction, indicating a crystalline structure. It was insoluble in ether, petroleum ether and alcohol, but dissolved when warmed in the pure oil of stavesacre or in the ether-oil solution. It was redeposited on cooling. On ignition it emitted the odor of burning fat and left a residue containing calcium, as shown by the flame test. It, therefore, appeared to be a calcium-fatty acid compound. The free fatty acid was found to be non-volatile and was readily soluble in ether. After repeated recrystallizations from alcohol it melted at 55–56°. The ethyl ester melted at 17.6°. These data indicate that it may be the C 17 acid of the acetic acid series, known variously as daturic or margaric acid, or simply as heptadecylic acid. However, owing to the fact that the occurrence of odd-carbon fatty acids in nature is a subject of keen dispute (6) this conclusion is presented only tentatively, and more work is needed to settle the point. Fresh U. S. P. ether was slow in causing precipitation of the calcium compound from the ether-oil solution, whereas ether that had been used previously and recovered brought about its precipitation almost immediately. The only difference ascertained between the two samples of ether, to which this behavior might be traced, was the presence of water, approximately to the point of saturation, in the used ether and its relative absence in the fresh ether. It is suggested that the water reduced the solubility of the calcium compound in the oil.

The ether solution containing the oil and alkaloids was extracted with portions of 5 per cent sulphuric acid until tests showed complete removal of the alkaloids. The ether solution was freed from acid by thorough washing with water, after which the ether was distilled on the water-bath. To expel the last traces of solvent the oil was heated to 120° under reduced pressure.

Analysis of the oil:[1]

Specific gravity 20/4	0.891
Refractive index at 20°	1.462
Acid value	92.8
Iodine no. (Hanus)	80.2
Saponification value	190.0
Acetyl value	12.8
Unsaponifiable	2.92 per cent

The sulphuric acid solution containing the alkaloids was a deep brown and slightly turbid. It was washed with chloroform, which removed an appreciable amount of color but at the same time dissolved out some alkaloids. On account of the impurity of the chloroform solution nothing of value could be recovered from it.

The aqueous acid solution was freed from dissolved chloroform by warming to 60° under vacuum. To it was added sodium hydroxide solution in slight excess, causing precipitation of the alkaloids as a curdy, bulky mass tinged yellow by absorption of coloring matter. The precipitate was filtered and washed. More precipitate was obtained by adding more sodium hydroxide to the filtrate.

The precipitate was dissolved in the minimum amount of dilute sulphuric acid. On standing some crystals of calcium sulphate developed, showing that calcium had been removed from the oil by the acid. A second precipitation with sodium hydroxide brought down the alkaloids colored yellow as before. The precipitate was filtered and washed with water as before, sucked as dry as possible, and dissolved in alcohol. The alcohol solution on standing deposited more calcium sulfate this time in gelatinous or amorphous form, as well as some potassium sulfate. The potassium also was derived from the oil.

After the alcohol was evaporated the akaloid residue was dissolved in a small quantity of chloroform, forming a brown solution. The addition to this solution of five times its volume of ether resulted in a clear slightly yellow ether solution and a viscous almost resinous deposit.

The ether solution was poured off and to it was added several Gm. of crushed silica gel. The mixture was slowly evaporated, treated with more ether and again evaporated. It was then taken up in ether and filtered free from the silica gel and its adsorbed impurities. On evaporation of the ether, crystals of the alkaloid appeared.

An attempt to obtain crystals from the ether-insoluble fraction dissolved in alcohol by treatment with silica gel was unsuccessful.

The filtrate from the precipitation with sodium hydroxide, which contained appreciable quantities of alkaloid, was extracted with chloroform. After evapora-

[1] Conducted by W. F. Baughman of the Oil, Fat and Wax Laboratory, Bureau of Chemistry and Soils.

tion of the cholroform the residue was separated into ether-soluble and ether-insoluble fractions. Only the ether-soluble fraction yielded crystals.

The combined crystal residues were recrystallized from alcohol twice. The crystals, which appeared as 6-sided colorless plates had a melting point (uncor.) of 187.5–187.8°.

Analysis of the crystals resulted as follows:[1]

0.1207 Gm. gave 0.2948 Gm. CO_2 and 0.0837 Gm. H_2O. Carbon 66.60%. Hydrogen 7.76%. 0.0503 Gm. consumed 4.15 cc. of 0.01948 *N* HCl. Nitrogen 2.25%.

	C.	H.	N.
Calculated for $C_{34}H_{47}NO_9$	66.52	7.72	2.28
Found	66.60	7.76	2.25

This formula and the melting point above agree with the values found by Walz (17), and identify the alkaloid as delphinine.

A crystallographic study of this alkaloid was undertaken by C. M. Smith of the Insecticide, Fungicide and Caustic Poison Control. His report follows:

Delphinine has been examined previously by Lagorio (14) and by Arndt (9). Their results, however, did not entirely agree. Measurement of the crystals prepared in this investigation fully corroborate Arndt's figures. See Table I.

TABLE I.

	System.	Axial ratio.	Forms: Basal pinacoid c(001).	Brachypinacoid b(010).	Unit pyramid o(111).	Unit macrodome r(101).	Interfacial angles: r:r′.	o:o′.	r:c.	o:c.
Lagorio	Orthorhombic	0.637:1:0.804	Present	Present	Present	Absent	.....	.....	.....	.....
Arndt	Orthorhombic	0.783:1:1.017	Present	Present	Present	Present	104°48′	117°33′	127°39′	121°28′
Smith	Orthorhombic	0.77:1:1.01	Present	Present	Present	Present	104°57′	117°21′	127°33′	121°10′

Further examination of the crystals by means of the polarizing microscope showed the characteristics of the orthorhombic system. The average index of refraction is 1.56, and the maximum birefringence approximately 0.006. Lagorio's statement that the birefringence is positive could neither be confirmed nor disproved, owing to the indistinct interference figures obtained.

No evidence of other crystallizable bases was found, and, although several other alkaloids both crystalline and amorphous have been reported in the literature, delphinine remains the only one that has been consistently obtained.

SUMMARY.

Stavesacre seed by extraction with petroleum ether yielded a fixed oil, the properties of which have been determined. It yielded also the alkaloid, delphinine, previously known.

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CHLORINATION OF ANTIPYRINE. I. CHLOROANTIPYRINE.*

BY W. O. EMERY.

While the apparent ease with which antipyrine responds to the action of chlorinating agents has been noted by several investigators, its behavior in this respect has not apparently been accorded the importance it merits. Schweissinger[1] observed the formation of a white precipitate on treating antipyrine with an aqueous solution of calcium hypochlorite. Gay and Fortune,[2] on the other hand, found that this reagent is without effect on antipyrine in the cold, but does yield on boiling a yellow solution. Berenger[3] reported that chlorine water, as also sodium hypochlorite solution, loses in contact with antipyrine its characteristic odor, yielding with the former a white precipitate. Michaelis and co-workers (Röhmer and Pasternack resp.)[4] prepared by the action of phosphoroxychloride on antipyrine the dichloro substitution product, $C_{11}H_{12}N_2Cl_2$, from which alkali readily regenerates the mother substance. In a study of the behavior of iodo- and bromoantipyrine toward potassium iodide and hydrochloric acid, Bougault[5] mentioned a chloroantipyrine corresponding apparently with the composition, $C_{11}H_{11}N_2ClO$,

* Contribution from Special Collaborative Investigations, Bureau of Chemistry, U. S. Dept. of Agriculture.

[1] *J. Pharm. Chim.* (V), 11, 31 (1885).

[2] *Ibid.*, (V), 17, 596 (1888).

[3] *Ibid.*, (V), 18, 393 (1903).

[4] *Ber.*, 31, 3194 (1898); 32, 2398 (1899).

[5] *J. Pharm. Chim.* (VII), 20, 248 (1919).

which he obtained, according to Leulier,[1] by the action of alkaline hypochlorites on antipyrine. Leulier made a somewhat specialized study of this reaction, employing as chlorinating agent a "liqueur de Labarraque" alkaline to litmus and with an active chlorine strength varying from 20 to 34 Gm. per liter. His yields of chloroantipyrine were, however, far from satisfactory, and the product, moreover, of only moderate purity. Even after recrystallization it retained a yellowish cast, and gave the same color tests as the mother substance (red with ferric chloride, green with sodium nitrite and acetic acid), facts explaining in all probability the relatively low chlorine content reported (about 1% under the theoretical), and, as will be subsequently shown, a melting temperature some five degrees below that of the chemically pure substance.

Some time ago the writer had occasion, in connection with a study of the progressive halogenation of antipyrine, to observe the marked difference in behavior of chlorine toward antipyrine in solvents like water, methanol, acetic acid and chloroform. The results obtained in these operations varied to such an extent, and were so unusual when viewed from the manner in which iodine and bromine in particular react with antipyrine, that further study seemed justified. While there is every reason to believe that the reaction is inaugurated in accordance with the equations:

$$C_{11}H_{12}N_2O + Cl_2 = C_{11}H_{12}N_2Cl_2O = C_{11}H_{11}N_2ClO + HCl$$

it has not been possible in any of the experiments so far undertaken with free chlorine to intercept or isolate monochloroantipyrine, the substance primarily sought and comparable with iodo- and bromoantipyrine. In every instance where this compound might reasonably be expected, only higher chlorinated products appeared containing two, three or more atoms of chlorine to the molecule, according to the particular solvent employed during chlorination. These results would seem to show that chloroantipyrine, if and when formed as above indicated, has an equal or greater affinity for chlorine than the mother substance, and is therefore immediately after formation converted into higher chlorinated derivatives. Shortly after this the writer's attention was directed to Bougault's reference to this product by Leulier's work on chloroantipyrine, and it was accordingly deemed expedient to repeat the latter's experiments in part with a view to betterment of his procedure and preparation of chloroantipyrine in chemically pure condition, preliminary to a careful study of its properties, more especially of its behavior toward chlorine. While the chlorinating agent employed by Leulier was a "liqueur de Labarraque," alkaline to litmus and with an active chlorine content varying from 20 to 34 Gm. per liter, that used by the writer was an alkaline aqueous solution containing approximately 20% sodium hypochlorite.

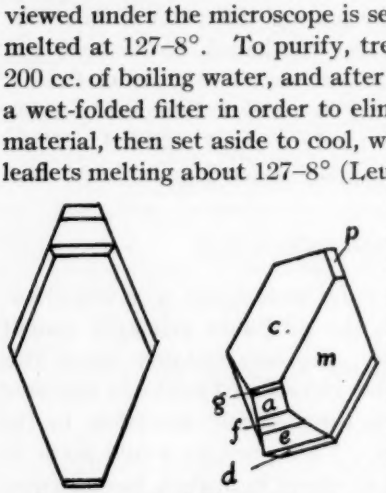
EXPERIMENTAL.

Sodium Hypochlorite.—To prepare this reagent for use in chlorinating antipyrine, a 40% solution of sodium hydroxide in water is first chilled to the temperature of melting ice, then treated with chlorine to a point just under complete conversion to sodium chloride and sodium hypochlorite, so that the solution will

[1] *J. Pharm. Chim.* (VII), 29, 447 (1924).

after filtration (by suction on a small porous plate) from precipitated sodium chloride still be distinctly alkaline to litmus and contain about 20% sodium hypochlorite. Should the treatment with chlorine have been excessive, the desired alkalinity may be restored through addition of a few drops of concentrated caustic soda.

Chloroantipyrine.—To a solution of 5 Gm. of antipyrine in 25 cc. of water chilled to about 5° add 20 cc. of the above reagent likewise chilled to the same temperature. Stir vigorously with a thermometer or glass rod, allowing the temperature to rise slowly until at about 10° a straw-yellow precipitate begins to separate, and increases rapidly in volume with rise in temperature to about 16°. Dilute with 25 to 30 cc. of cold water, stirring the while, and when no further increase in amount of precipitate is perceptible, filter rapidly on a small suction plate and wash several times with cold water. Yield, about 4.5 Gm. dry product, which viewed under the microscope is seen to consist of diamond-shaped leaflets. These melted at 127–8°. To purify, treat the crystals in 2.5 Gm. portions with about 200 cc. of boiling water, and after almost complete solution pass the liquid through a wet-folded filter in order to eliminate a small amount of difficultly soluble tarry material, then set aside to cool, whereupon the filtrate slowly deposits faint yellow leaflets melting about 127–8° (Leulier 123–4°). A second similar treatment with boiling water yields pale straw-colored leaflets melting about 128–9°. A final recrystallization from dilute methyl alcohol (following previous contact with purified animal charcoal) should give snow-white crystals melting at 129°. On allowing an alcoholic solution of the compound thus purified to slowly evaporate, transparent measurable crystals are obtained. Larger and more beautiful ones result from the spontaneous evaporation of a dilute solution of the product in a mixture of methyl and isopropyl alcohols.



Crystal graph of Chloroantipyrin.

Chloroantipyrine is a colorless, odorless solid permanent in the air, melting at 129° and crystallizing from water mostly as snow-white laminated aggregates, from alcohol in single and multiple plates or pyramidal forms of the monoclinic system. The product subjected to crystallographic examination[1] consisted of clear, brilliant pyramidal crystals about 7 to 8 mm. long, 4 to 5 mm. broad and of varying thickness. They were unusually distorted due to the over-development of the back domes and the pyramid, while the elongation of the prisms along the *c* axis frequently lead to coffin-shaped crystals. The latter were measured on the two-circle reflecting Goldschmidt goniometer, being oriented on the prism zone. The reflections as a rule were excellent, the front dome *g* and the back dome *f*, however, yielded poor reflections. The measurements recorded are the average reflections from ten crystals.

The optical examination,[2] checked by a monochromatic illuminator, showed the refractive indices to be: n_α 1.501 (± 0.002); n_β 1.680 (only approximate, since the substance is somewhat soluble in the immersion liquid); n_γ 1.733 (and

[1] Carried out by Mr. Raymond M. Hann of the Oil, Fat and Wax Laboratory, Bureau of Chemistry.

[2] Courtesy of Mr. G. L. Keenan of the Microchemical Laboratory, Bureau of Chemistry.

ANGLES OF CHLOROANTIPYRINE.

Monoclinic, prismatic. a:b:c = 2.8527:1:0.9732. β = 63° 15′.

No.	Letter.	Miller.	Goldschmidt.	Description.	Angles. Observed. φ	Observed. ρ	Calculated. φ	Calculated. ρ
1	c	001	0	Prominent	90°	26° 45′	90°	26° 45′
2	a	100	∞0	Prominent	90°	90°	90°	90°
3	m	110	∞	Prominent	21° 26′	90°	21° 26′	90°
4	g	301	+30	Minute, rarely present	90°	58°	90°	58° 12′
5	d	201	$\bar{2}0$	Sometimes absent	90°	15°	90°	14° 35′
6	e	401	$\bar{4}0$	Largest back dome	90°	45° 56′	90°	45° 41′
7	f	501	$\bar{5}0$	Poorly developed	90°	57±	90°	54° 35′
8	p	111	$\bar{1}1$	Prominent	6° 56′	44° 26′	...	...

soluble). In parallel polarized light, nicols crossed: birefringence extremely strong. In convergent polarized light, crossed nicols: partial biaxial interference figures, usually showing one optic axis up.

Chloroantipyrine is as one might reasonably expect more resistant to the action of nascent hydrogen than the corresponding bromine and iodine derivatives. Thus, when treated in methanol-acetic acid solution with zinc dust, no reduction of chloroantipyrine takes place, while such treatment in the case of bromo- and iodoantipyrine effects only partial reduction of the former, but complete conversion of the latter to antipyrine. However, with hydrogen and platinum *via* Voorhees and Adams[1] all three derivatives are uniformly reduced to antipyrine.

Analysis. Calculated for $C_{11}H_{11}N_2ClO$: C, 59.31; H, 4.98; N, 12.59; Cl, 15.93. Found: C, 59.22; H, 5.02; N, 12.70; Cl (Carius), 15.84.

The *periodide*, $(C_{11}H_{11}N_2ClO)_2.HI.I_2$, dark ruby-red prisms, and the *picrate*, $C_{11}H_{11}N_2ClO.C_6H_3N_3O_1$, chrome-yellow acicular crystals melting 117–8°, were prepared by the usual methods.

SUMMARY.

A method has been perfected for the preparation of chloroantipyrine in chemically pure form.

WASHINGTON, D. C.

VOLUMETRIC DETERMINATION OF STRYCHNINE AND BRUCINE IN NUX VOMICA AND ST. IGNATIUS BEAN.

Volumetric determination of total alkaloids: Dissolve the alkaloids obtained and purified as directed in a former article (Y. B., 1921, 252) in an excess of hot N/10H_2SO_4 and titrate the H_2SO_4 consumed. *Destruction of brucine:* Add to the neutral liquid obtained in the preceding titration 2.5 cc. of 50 per cent H_2SO_4 for each Gm. of total alkaloids. Evaporate the solution to 15 cc., cool and add as many times 15 cc. of a mixture of equal parts of HNO_3 (sp. g. 1.42) and water as there are Gm. of total alkaloids. *Determination of strychnine:* At the end of 1 hour make the red liquid obtained in the preceding operation alkaline with NaOH. Shake out the strychnine with several portions of $CHCl_3$. Add a measured excess of N/10H_2SO_4 to the $CHCl_3$ shakings and heat on a water-bath until all of the $CHCl_3$ has been driven off. Titrate the excess of acid with N/10NaOH. If S cc. of acid was consumed, then $S \times 0.0334$ = Gm. of strychnine. $N - S = B$ cc. $B \times 0.0394$ = Gm. of brucine.—E. Dufilho (*Bull. Soc. Pharm. Bordeaux*, 65, 7 (1927). Through *Ph. J. and Ph.*, Sept. 17, 1927.

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[1] *J. Am. Chem. Soc.*, 44, 1397.

SUGGESTIONS FOR IMPROVEMENT IN THE TEXT OF THE PHARMACOPŒIA WITH SPECIAL REFERENCE TO THE DEFINITIONS.*

BY H. H. RUSBY, M.D.

At the proper alphabetical points in this paper, I have introduced the names of those vegetable drugs which I believe should be included in our Pharmacopœia but which are not there. My reasons for this recommendation have been fully set forth in previous articles (JOUR. A. PH. A., 15, 961 (Nov.) and 16, 528 (June)). My primary reason, and one that I believe to be sufficient, is the fact that these drugs are sold, in bulk, in their crude form, in the number of pharmacies stated in connection with my mention of the different articles. This fact alone calls for their admission, on the principle of "pharmaceutical necessity." It is to be noted further that some of them are represented at present in our Pharmacopœia, in the form of one or more of their preparations, for the manufacture of which they are "pharmaceutically necessary." Even though such preparations are not in the Pharmacopœia, they are largely supplied by pharmacists, and such sales have not been included in my statistics, on which these recommendations are based.

These conditions, as already stated, seem to me to demand the inclusion of such drugs, without regard to the exact degree of their "therapeutic usefulness," no matter where or when or by whom such usefulness is "approved." Nevertheless, I have not failed to refer to this subject of therapeutic usefulness in this paper, when it appears to be important.

As an illustration of a definition perfect in substance, expression and form, we can cite nothing better than that of **Adeps:** "The purified internal fat of the abdomen of the hog, *Sus scrofa* var., *domestica* Gray (Fam. *Suidae*)." The same form is used for that of **Adeps Lanae,** but nearly all other definitions are introduced with the name of the article defined, as "Aconite is the dried tuberous root." Both are equally perfect as definitions, choice relating wholly to taste and convenience. If a general dictionary were to introduce every definition with "——is," the increased cost and inconvenience would be a very serious matter, but these considerations are trifling in the present case. The use of the introductory words adds positiveness and is not likely to be found objectionable to anyone. Being adopted, however, the form should prevail throughout.

The innovation next to be considered appears to me to be indefensible, on either scientific or literary grounds. It is well illustrated by the definition of **Colchici Cormus;** "Colchicum Corm is the dried corm of *Colchicum autumnale* Linne (Fam. *Liliaceae*). Colchicum Corm yields not less than 0.35 per cent of colchicine."

All study of definitions, as a subject, teaches that their object is to state, in the briefest and most concise manner possible, exactly what the thing defined is, in language that omits nothing pertaining to the word and admits nothing else. In the first sentence of this definition, we have a positive statement that this article is the Corm of *Colchicum autumnale*, which is not exactly

* Presented before Joint Session of Scientific Section and Practical Pharmacy and Dispensing, A. PH. A., St. Louis meeting, 1927.

true. In order to be this drug, the corm must contain a specified percentage of colchicine. The use of this title here is special and limited and it does not refer to the ordinary meaning, nor to the botanical meaning of the term, hence the above statement would not be a correct answer to the question, "What is the drug Colchicum Corm?" The only correct answer would be "Colchicum Corm is the corm xxxxxxx, containing not less than 0.35 per cent of colchicine." If this is the correct answer to that question, then that answer is the correct definition of the title. I doubt whether any careful scholar can be found who would not support this view. I believe that the Pharmacopœia should thoroughly revise this language and incorporate all such qualifying requirements into the respective definitions in a single sentence.

In the case of physiological standards, the conditions are different. Such standards do not refer to what the thing is, physically or chemically, but to a test of what it will do; that is, of its efficiency. To combine these physiological standards with the definitions is not called for and would be impracticable in many cases.

Acacia.—The words "The stems and branches of" are superfluous and therefore out of place in a definition, the wording of which should be limited strictly to the accomplishment of its purpose. The addition of these words is an instance of change made for the mere purpose of change, without regard to being for better or for worse.

Aconitum.—In accordance with principles discussed above, the second sentence printed under the definition should be incorporated into the first thus, "without more than 5 per cent.," etc.

Adeps Lanae.—Would not the word "fatty" appear better than "fat-like," and be equally correct?

Agar.—Here again the second paragraph of the definition should be combined with the first, thus "containing not more than," etc.

Alcohol.—This language cannot be construed by any process of reasoning, as constituting a definition. Why the form used in a previous edition, beginning "A liquid containing," and specifying the amount of water, should have been abandoned, is not clear. On the whole, it seems preferable to the present one.

Aloe.—Since there are two juices in these leaves, and the presence of one of them in aloes spoils it, would it not be more accurate to say the "watery juice?"

Aloin.—Better to say "from aloe, varying in."

Amylum.—The term "the granules" appears indefinite and unscientific. It is better to say "the starch-grains." In ordinary language, this would be using a word to define itself, but this is not so in the present case. What we are defining is not starch grains in the general sense, but the official drug "starch." It is as appropriate to define this as being the "starch grains of" a particular kind as to define *Guaiaci Lignum* as "the wood of the tree," or *Carbo Ligni* as "wood charcoal prepared" as directed. The language of the preceding edition, in this case, appears decidedly preferable to that of the present one.

Apium or Celery Seed.—Include; sold in 69% of pharmacies.

Aqua.—This definition is a model, since its language specifically includes all the following descriptions and test matter as a qualifying part of itself.

Many years ago, I proposed that there be a general statement in the introduction of the U. S. P. stating that all such matter was to be regarded as a qualification of the definition, and as having the same binding force as the definition itself.

Arnica Flowers are sold in 37% of pharmacies.

Asafoetida.—As this definition stands, it includes the exudate of all species of Ferula,

even Galbanum, which certainly is not correct. This hyper-inclusiveness can be avoided by saying "some other species," or "one or more undetermined species."

Aspidium.—Not only is this definition faulty in form, but it is incapable of use. When male fern is fresh, the entire inner portion is of a green color. With the passage of time, the outer portions, and successively the inner ones, change to brown, until no green tissue remains. The change takes place in every piece, and different pieces will show all intervening grades. To comply with the definition, each piece would have to be subjected to the peeling or scraping off of all the brown portion, which would be wholly impracticable. It will require some investigation to determine just how to word this requirement, but it would seem fair to require that on the average at least two thirds of the diameter of the cross-fractured surface should have a green color.

Aurantii Dulcis Cortex.—Omit the comma after "fresh."

Balsamum Peruvianum.—The statement here is "Balsam of Peru is obtained from *Toluifera Pereirae*." This statement, occupying the position and performing the office of a definition, is absolutely inane! The Pharmacopœia might as well inform us that it is obtained from Central America or from the Western Continent or from south of the north pole; or it might tell us all the places from which it is not obtained. We might obtain a nest-full of eggs or a particular insect from that tree, which would be Balsam of Peru, according to this definition. As a matter of fact, both the bark and the fruits are actually collected from this tree for medicinal use, so these are Balsam of Peru, according to this "definition." Balsam is the proper designation of this substance, and no improvement can be made over calling it "A balsam obtained from" the tree named.

Balsamum Tolutanum.—This proper and classical title should be restored, with a definition framed on the same principles as in the case of the preceding.

Belladonna Folia.—Assuming that a lot of belladonna leaves, of full alkaloidal strength, contains 6 per cent of acid-insoluble ash, in what way would it be objectionable? Would not any amount of ash that was actually objectionable be sufficient to reduce the alkaloidal percentage below the requirement, and if so, might not the ash limit be omitted from most of such drugs? This subject of ash limits will be fully discussed under the title "Stramonium."

Belladonna Radix.—Ash limit; see "Stramonium."

Benzaldehydum.—If Benzaldehyde is *anything* that contains not less than 85 per cent of $C_6H_5.CHO$, then many mixtures might come under this name. By a little stretch we might even apply the title to the container. Unquestionably, there should be some designation of the nature or origin of the substance of which this 85 per cent of absolute benzaldehyde forms the essential part.

Benzoinum.—Benzoin is a balsam, every balsam being a "balsamic resin."

The requirements for purity are well insisted on in this case. There is no possible excuse for most of the impurities, both organic and inorganic, that are so frequently found in Sumatra Benzoin. Even if the efficiency of the preparations was not influenced, simple considerations of economy should forbid the selling of large quantities of added earthy matters to be transported so far, and to pass through so many hands, at steadily added costs.

Buchu.—A great many years ago, this definition included the three species now named, which appears to have been a correct procedure. By two eliminations, it became restricted to one species, and by two others, it has been restored to its original scope. This is an excellent illustration of the folly of making changes on insufficient grounds. By a continuation of this process, we might see this entire cycle again repeated. Since there are certain differences of odor, flavor and color in the different buchus, it would not be out of place, as is done in case of Methyl Salicylate, to require that the species yielding the preparation be stated on the label.

Capsicum.—The substitution of the name "African Chillies" for "African Pepper" appears inadvisable. Although there is carelessness in the use of these names in trade circles, it would appear desirable, all things considered, to restrict the name chillies to the various fruits of *C. baccatum*.

The restriction of the title to the African-grown product doubtless has its merits and should not be lightly criticized, but I have seen Capsicum of first quality produced in South America and Mexico, and even in Florida. In none of these instances could the article of African growth be distinguished. How then can this provision of the definition be enforced?

Cardmom Fruit is sold in 58% of pharmacies.

Cascara Sagrada.—I have elsewhere called attention to the fact that this name is purely Spanish, and that the proper Latin title is *Rhamnus Purshiana.*

Cassia Buds are sold in 34% of pharmacies.

Cataria is sold in 30% of pharmacies.

Cera Flava.—Here again we have a definition that does not offer a statement of what the article is, but of how it is obtained. It is the melted and purified honeycomb of the bee.

Cetaceum.—"Fatty substance" is obtained from the head of the sperm whale that is not cetaceum. This is obtained from "cavities in the head," according to the statement in former editions of the U. S. P., that has been changed inadvisedly.

Chenopodium is sold in 37% of pharmacies.

Chondrus is sold in 54% of pharmacies.

Chrysarobin.—The former expression, "found deposited," is more correctly expressive than the word "deposited." The language would be more in keeping with that used in other and similar cases, by saying "occurring naturally in cavities of the wood."

A question has been raised as to the applicability of the name "Vouacapoua" to some of the species that have been called "Andira." Some technical study is called for to determine which of these names applies to this particular species.

Cimicifuga.—Without claiming any special knowledge on the point, I should think it very likely that a good Cimicifuga might at times contain more than 4% of ash. Probably, the Committee has good grounds for fixing this figure.

Cinchona.—I have never varied from my opinion that Red and Yellow Cinchonas should be separately titled. But this question appears to be settled permanently.

However, there seems no justification for making the Compound Tincture from anything except the Red Cinchona, the original procedure. This tincture is used rather as a tonic than an antiperiodic, and the red bark is far less liable to cause cutaneous irritation and associated symptoms than the yellow. The red is sold specifically in 44%, the yellow in 25%, of pharmacies.

Cinnamomum.—The substitution of the indefinite Saigon species for the standard and classical Ceylon is an amazing performance, the rationale of which has never been explained to me. The Ceylon and Saigon are sold equally.

Citrullus or watermelon seed is sold in 30% of our pharmacies.

Cocculus Indicus in 44%.

Copaiba.—The claim is made, apparently on good authority, that African Copaiba of good quality has been imported. If the definition contained a requirement for the amount of its volatile oil, the restriction to "South American species" might be abrogated without risk.

Coriander is sold in 44% of our pharmacies.

Cydonim or Quince Seed is sold in 51% of pharmacies.

Digitalis.—It is not a good procedure to eliminate all requirements regarding purity from this definition. The requirements given at the end of the second paragraph are excellent, but their proper place is attached to the definition.

Elaterinum.—This definition, in view of the conditions of the case to which it refers, is positively dangerous. Care in the discrimination between elaterium and elaterinum cannot be carried too far, especially considering the close similarity in names. Elaterium is "a substance obtained from the juice of" this fruit. Thus, so far as the definition states, Elaterium and Elaterinum are one and the same, yet the correct dose of one is liable to prove fatal in the case of the other. The former definition read "obtained from elaterium (which is) a substance deposited by the juice of the fruit." It may be that the elaterinum is sometimes obtained directly from the juice, or even from the fruit, but it can be, and was formerly, extracted from the elaterium, and this specification in the definition serves the very useful purpose of directing attention to an important distinction. The definition "a neutral principle extracted from elaterium, which is a substance deposited by the juice of the fruit," was formulated by a man of rare powers and habits of discrimination, and it should never have been tampered with by anyone less capable and cautious.

Ergota.—So far as I know, no one has ever tested the ergot that develops on the stem and leaves to ascertain whether it has the same properties as that which replaces the grain. It would doubtless be rejected, in any case, and is in fact rarely seen. Stilll, it does seem as

if the scientifically accurate definition that so long prevailed should have gone undisturbed. This is another case of making changes from a love of novelty. It is as though a geographer were to locate the Amazon River on some other continent because we had been for so long a time locating it in South America that a change seemed desirable!

A more serious error is in stating that ergot is unfit for use after being kept more than a year. If kept properly dry, it is unchanged after 25 years. This statement should be qualified to read "Unless kept perfectly dry and excluded from the atmosphere, it is unfit," etc.

Eucalyptol.—The retention of the name Eucalyptol in this title, even though cineol is the original, and therefore the proper name, is entirely correct, on the ground of "convenience and safety," but wherever used otherwise than as a title, the use of the correct name is desirable.

Foeniculum is sold in 66% of pharmacies.

Gelatinum.—It would seem that some appropriate qualification could be found for the word "product" in this definition, to render it more definite. Even the term "albuminoid" would be of service.

Glycerinum.—This is not a definition at all.

Glycyrrhiza.—I have commented elsewhere on this definition. As there is a difference of opinion as to whether these are distinct species or varieties of one, it seems justifiable to treat them as two, for the purpose of eliminating the absurd association.

Granatum.—The change of wording from "stem and root" to "stem or root" makes matters worse than before. If stem bark and root bark are to be mixed, it should be in a natural ratio, rather than to allow one to use stem bark only and another the thrice more active root bark. Why not specify an alkaloidal percentage?

Illicium is sold in 40% of pharmacies.

Ipecacuanha.—The nomenclature of these plants is still in doubt. It now seems quite clear that the original and correct name of the Brazilian Ipecac plant is *Ervea* and neither Cephaelis or Uragoga. The Colombian plant is not well enough known to admit of a positive conclusion as to its genuine affinity. However, the agreement of the U. S. P. authorities, in the interest of convenience, to use the incorrect *nomina conservanda* of the internationalists will determine the retention of Cephaelis. A page of the appendix of the Pharmacopœia should be devoted to a display of these different names. The first column should contain those titles regarding the botanical names of which there is confusion. In a second column should be the correct name, based on the rules of priority, and in a third, the incorrect names, the use of which has been agreed on for convenience. As it stands now, a careful medical botanist who will use none but correct names is discredited in the minds of the many who do not understand the situation, and who believe him to be in error because his names do not correspond with those of the U. S. P.

With the two ipecacs differing so greatly in their constituents, which constituents differ, in properties and uses, I renew my expression of opinion that they should be segregated under two titles.

Emetine and *Cephaeline* should both be included in the Pharmacopœia and they should be defined as obtained from the Ipecac plant and not from the root only. There is a growing scarcity of this drug, with steadily rising prices. The root probably represents only about a tenth of the total weight of the plant, from all parts of which the alkaloids could be extracted. It is the use of the root for this extraction that has caused the increased demand, which would be greatly reduced by the use of the entire plant for this purpose.

Jalapa.—It is about time that a movement was started to secure a better grade of this article than the 7 per cent resin requirement calls for. Formerly, there was no difficulty in securing Jalap containing 15 to 18 per cent of resin. Our demands have been lowered gradually to 12, 9 and now 7 per cent, and we could procure a much better article if we would insist upon it.

Juniperus is sold in 66% of pharmacies.

Lactosum.—Another instance of a wholly unwise change of title. The term Saccharum Lactis was very expressive and, more important, was thoroughly in use, and the substitution of lactose is in violation of all conservative principles.

Lavender Flowers are sold in 35% of pharmacies.

Lobelia.—It would be well to specify the thickness of the stems, as is done in the case of peppermint and spearmint.

Mace is sold in 42% of pharmacies.

Manna.—So far as the language of this definition would determine, it is the alcohol that must be of 90 per cent "by volume." This language is unintelligible.

Matricaria is sold in 72% of pharmacies, and is a very useful medicine.

Mel.—How is a pharmacist, purchasing honey, to know whether the bees gathered it "mostly from the nectaries of flowers?" Or how can the owner of the bees himself know this fact? All that anyone can know is that it is "the saccharine substance deposited in the honeycomb by the bee," and the former definition is but marred by this uncalled-for extension.

Myrcia Leaves are sold in 63% of pharmacies.

Myristica.—The ordinary presence of mold in the cavity of this seed has been referred to elsewhere, and its recognition becomes a legal necessity.

Myrrha.—The term "other species," unless qualified by preceding it by the word "some," opens the way for the inclusion of recognized adulterants.

Opium.—It is to be noted that the fruit of the poppy plant is not a capsule.

Orris is sold in 56% of pharmacies.

Pimento or allspice is sold in 50% of pharmacies.

Piper nigrun is sold in 49% of pharmacies.

Pix Pini.—Here, if anywhere, we have justification for changing an absurd title to a proper descriptive one, yet I believe the committee, in doing so, violated one of the most important of Pharmacopœia principles. The utter absurdity of regarding "a product obtained by the destructive distillation" as constituting a definition has been discussed elsewhere.

Populi Gemmi is sold in 33% of pharmacies.

Prunus Virginiana.—The form of this definition can be improved, and the botanical name is subject to question, in view of recent claims regarding the species that Linne had in hand when describing it.

Quillaia is sold in 42% of pharmacies.

Resina Draconis is sold in 31% of pharmacies.

Rheum.—Here again it would be safer to say "some other species."

Sanguinaria is sold in 40% of pharmacies.

Sapo.—The committee has done well to steer clear of all controversies over this annoying subject, by making its own definition and title clear and unmistakable, no matter what differences exist in commercial usage. Sapo or soap, purchased as an official drug, or for medicinal use, in the broadest usage, must be the article here defined, and in order to secure it, the use of the word "soap" is just as compelling as that of "Castile soap" or "Olive-oil Castile soap;" hence, the medicinal article is fully protected by the present language of the Pharmacopœia, which should not lend itself to contentions regarding non-medical commercial usage. The Pharmacopœia contains a definite statement that its standards are to relate only to the medicinal uses of the articles treated. When one considers the claim that has been seriously and officially made by a witness before the Federal Trade Board that a man advertising as Castile soap an article that was manufuactured outside of Castile, should be punished for fraud by being forever denied the use of the United States mails, we may well congratulate ourselves that the Pharmacopœia is completely severed from such complications.

Sarsaparilla.—The Committee has erred very seriously in imposing an ash-limit of four per cent on Mexican Sarsaparilla, and it should exercise the powers conferred on it by an immediate correction. It is possible to produce this article of this quality, as is proved by the fact that such Mexican Sarsaparilla is occasionally seen in commerce, but it is equally well demonstrated that it is impracticable to do so. Enormous losses have been and are being suffered by the most honest and careful dealers, through the rejection of supplies under this requirement. The conditions of collecting and preparing the Mexican variety render this standard practically unattainable.

Sassafras is sold in 61% of pharmacies.

Senna.—Although it is very doubtful whether Alexandria senna possesses the superiority over India senna that is popularly supposed to exist, it is an indisputable fact that this belief is very general. Acting in harmony with official procedure in other and similar cases, it would be well to specify that the label must state the variety. This is particularly desirable here, because this drug is so largely sold in its entire state.

Senna Pods are sold in 38% of pharmacies.

Sinapis Alba is sold in 66% of pharmacies.

Sinapis Nigra.—The very close similarity of various non-official mustards to this and also to white mustard renders it highly desirable that Sinapis Alba should have been retained. The description is not sufficiently minute to permit distinction, in all cases, and it should be improved.

Stramonium.—The omission of *D. Tatula* from this definition was a wise procedure. There is no better reason for the admission of that species than for any of the numerous others in the genus, as no definite data exist regarding its constituents and activity. All the plants of this group, no matter how similar, exhibit differences in composition and activity which forbid their indiscriminate substitution for one another.

The most important consideration regarding Stramonium and other drugs in a similar position, relates to its ash limit. Considerable sums of money have been lost during 1926 and 1927, through the rejection by the Bureau of Chemistry, acting under the U. S. P. requirements, of shipments of drugs that were of standard quality except for containing an excess of sand and of insoluble ash, Stramonium being one of the principal articles to which this statement applies. It is true that it is often possible to clean such drugs, but the margin of profit is often so small that this operation will result in loss. Aside from the mere consideration of ordinary cleanliness, there are two specific objections to the presence of earthy matters in drugs, on account of which ash limits should be imposed.

The first is purely a financial one. For each pound of sand present, every dealer along the line, and finally the consumer, is obliged to pay the price of a pound of drug; but, if the amount of sand is known from the beginning, as it can and should be, a suitable deduction can be made, which will correct this objection, in most cases. The effect of this loss, which would affect the collector and original shipper, would be to discourage such negligence, but there are cases in which this would not be true.

For generations it has been the custom for asafœtida shippers to add a peculiar red earth to their product. A regular trade in this adulterant is said to be carried on, and I have known this adulterant to amount to 85 per cent of the whole. Similar operations are almost the rule in preparing papaw juice. Very frequently coarse tapioca is merely dipped in the juice and sold as papaw. In such cases, especially in that of asafœtida, the money waste in transportation and trading is very great, and results in final serious loss, and the requirements can scarcely be too strict.

A second danger is that, with the admission of earthy matters, there may enter impurities of a more objectionable character than that of sand, but in that case, two or three per cent more or less is not going to matter.

The third and most important difficulty is that the medicinal strength of the drug is proportionately lowered by addition of inert matter. In the case of drugs for which there is no chemical standard, this objection is of great importance, but even here it is on the whole better to fix a liberal standard than to impose unreasonable burdens and risks on the dealers. On the other hand, there are some cases, notably that of Stramonium, in which there is a definite and effective way. If a lot of Stramonium containing 8 per cent of ash meets the assay requirement, the only effect of the sand is to limit excessive activity. In some such drugs we have an upper as well as a lower limit of activity, and the effect of this excess of sand would be merely that of promoting uniformity. By this, I do not mean to argue for excessive laxity, but to point out that the harm that may be done by a moderate excess of sand is not so great as that which has been done by the rejection of shipments that were of good quality from every practical point of view. In the case of henbane, this consideration has been acted upon. It is a curious fact, but one that all experience confirms, that shipments of henbane of unusually high alkaloidal strength, more often than not, contain the larger percentages of ash. I am convinced that the assay committee of the Revision Committee should investigate the bearing of these considerations.

Strophanthus.—Here we have a definition that admits both *S. hispidus* and *S. Kombé*, while that of Strophanthin, the active constituent, is referred to *S. Kombé* only. On the face of it, this would indicate that there is no strophanthin in *S. hispidus*. The admission of the latter to the definition of Strophanthus was based purely on physiological evidence, and doubt is cast on the sufficiency of this evidence in various ways. I have myself known of a case where

a life was lost by depending on large doses of tincture of *Strophanthus hispidus*, which had no appreciable physiological effect. In another case, no harmful results ensued from the taking of an enormous over-dose of a similar preparation. Recently, a case has been reported in which a tincture of Strophanthus, tested by the official process and found perfect, had to be given in 30 minim doses to secure any appreciable effect, while one made of known *S. Kombé* seeds was highly efficient, in the official dose. All of which goes to show that physiological standardization is still on trial, and that it is very rash for our pharmacologists to use it as conclusive evidence against the teachings of clinical experience.

Viburnum Prunifolium.—Although this drug is sold in comparatively few pharmacies, in the crude state, its preparations are very largely used, and the drug is one of our important articles of commerce. Its deletion from the Pharmacopœia was based on the negative results of experiments to determine its activity on the excised uterus! The pharmacologists performing these experiments have never advised testing the optical effects of atropine on the eye; after decapitation; not yet!

In one instance, I have known a fatal case of poisoning to be averted with the greatest difficulty, the damage resulting from the administration of a dose one-fiftieth of that which guinea-pig experiments had indicated as safe and proper for man.

ABSTRACT OF DISCUSSION.

Albert Schneider said he had contended for the use of the term "micron" instead of the decimal part of a millimeter. **H. H. Rusby** replied that changes in the Pharmacopœia were only made when necessary.

George M. Beringer said Dr. Rusby had performed a very important service for pharmacy and for pharmacopœial revision. The Pharmacopœia is the work of human minds; hence, not perfect; changes in the Pharmacopœia and National Formulary should be prompted by necessity; changes in titles are apt to create confusion. He expressed himself in sympathy with many of the criticisms made by the author of the paper, and said that the Charters' investigation will be of material assistance in future revisions; some revisers are guided too much by their personal belief as to the value of medicaments; he recalled his objection to the deletion of sodium arsenate, because physicians were prescribing it daily in some form. He thought that a definition should be complete in itself, every sentence of it should be studied with that end in view; even in correspondence misconstructions will occur. He was of the opinion that the comments made in the discussion of this paper should be prepared for consideration by members of the Revision Committee.

J. C. Munch said that the bio-assay methods of U. S. P. X are deserving of commendation; there had been increased interest and attention in the potency of drugs to which these are applicable, since the transition from optional to compulsory standardization.

H. V. Arny complimented Chairman Cook's efforts and results in bringing about understanding between those who differed.

Chairman Cook expressed appreciation of Dr. Rusby's contribution and regret that the Committee did not have his assistance during the revision. He said that every suggestion would receive careful consideration; that the entire text applied to an official drug or preparation. The Committee welcomes the type of constructive criticism presented by the author and those participating in the discussion.

ABSTRACT OF DISCUSSION ON THE NATIONAL FORMULARY.

Heber W. Youngken complimented the revision of the National Formulary; however, he referred to a few inconsistencies, relating to **Myrica, Euonymus** and **Xanthoxylene.** He also contended that micron should be used as the unit of microscopic measurement.

Considerable discussion followed relative to the spelling of Xanthoxylum, entered into by Messrs. Scoville, Arny, Beringer and others.

J. C. Munch inquired whether the purity rubric could not be more generally used.

Chairman Scoville said that the application of a purity rubric to some articles would cause trouble—whether it is best to add a purity rubric or not, or require a definite standard, are problems with which the members of the Committee labor in the work of revision.

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FATHER OF REFRIGERATION.

Man's eternal thirst might have been the underlying cause of the invention of ice-making and refrigeration by mechanical means had not Dr. John Gorrie of Charleston, S. C., and Apalachicola, Fla., been actuated by a higher and nobler purpose. Dr. Gorrie wrought to cool the rooms of a hospital where fever patients were confined to grilling beds with the mercury near the century mark and no ice nearer than New England. Dr. Gorrie made ice as early as 1845. It was never Dr. Gorrie's purpose to perfect a process for making ice, but all his energies were bent on air-cooling, primarily for hospitals where fever cases were being treated. At that time Apalachicola was the most important Florida seaport, being the outlet for all the cotton grown in the Chattahoochee Valley in Georgia and Alabama. The greatest drawback to the growth of the town was the prevalence of fever in summer. In his large practice Dr. Gorrie found it almost impossible to treat successfully violent cases of fever in the hot months. He first evolved the theory of controlling fever by cooling the patient by external means, and it is fully set forth in the newspaper and scientific print of the day. He was almost fifty years in advance of his profession along this line, but to-day the medical world recognizes the value of his teachings without always recognizing whence they originally came. No man who examines the claims made in his application for letters patent will dispute his right to the title of Father of Mechanical Refrigeration. He prophesied the application of refrigeration to the preservation of foodstuffs and to many other uses now commonly known. His claims for air-cooling in hospitals, dwellings and warehouses put him in the front rank of American inventors, and no invention held greater possibilities for human comfort than his.

EDITOR'S NOTE: The above was abstracted a number of years ago from an article by George D. Lowe, in "Uncle Remus," *The Home Magazine*.

The statue of Dr. John Gorrie is near that of Dr. C. W. Long in Statuary Hall at the Capitol in Washington.

Roger Burlingame writes interestingly of **John Uri Lloyd** in *Drug Topics* for September. The introductory lines read—"Pharmacy's 'Little Corsican' nearing his 80th birthday, happy in his work of tearing down fetish and blazing new trails, discusses some of the things that made life interesting to him."

WHAT IS YOUR NAME WORTH?*

BY ROBERT P. FISCHELIS.

Two specific instances, in company with a host of general ones, that have come to the attention of the writer, have served to focus his attention on the subject of this paper.

At the Fiftieth Anniversary Meeting of the Pennsylvania Pharmaceutical Association, held last June, David W. Horn, one of the two surviving charter members was called upon to give a message to the present generation. He said, in substance, that after an experience of sixty years in retail pharmacy he had come to the conclusion that the greatest asset to professional and business success is the preservation of the individuality of the pharmacist. Summed up in modern slang his message to the on-coming generation of pharmacists was "Be Yourself."

Just previous to the meeting referred to above, the Vice-President of the largest chain drug-store organization in the world told the New Jersey Pharmaceutical Association that the independent retailer who could make his personality felt in his community could compete successfully with any chain-store organization. A competent student of corporation-store methods recently cited instances where chain-store units had actually been moved away because they could not break the hold which their independent competitor had upon the people.

With evidence of this kind before us, it is pertinent to ask why so many independent retailers go out of their way to hide the identity of the one who is responsible for the policies and management of their stores. Granted that there are often valid reasons for the adoption of abstract titles for pharmacies, it is nevertheless certain that the use of such titles in place of the name of the dominant personality of the establishment is a handicap and should be avoided. A name may be difficult to pronounce or write but even so, it presents less of a handicap to the average citizen as far as association goes than the use of a term which may be totally irrelevant and conveys no thought of personal integrity, reliability, or service to the customer.

In their very interesting volume on modern sales and advertising methods, entitled "Your Money's Worth," Chase and Schlink touch on the subject of names. They say: "There are endless trade names by which a usually common-place and often unpatentable product is sought to be given predominance in the consumer's subconscious processes; so that when he thinks of roofing he will think of "Certain-teed;" of wall board he will think of "Celotex;" of soap flakes, "Lux." One recent number of one magazine reveals the following: "Celotex, B. V. D., Bondex, Pro-tex, Insulex, Ceco, Eno, Nokol, Synchrophase, Rhodo-gro, Ozite, Kaltex, Almco, Florazona and others.

"When one or two manufacturers in a single industry used this stamp-in-the-name technic as the spearpoint of a national advertising campaign, they may have profited, but when many manufacturers are doing it, their efforts cancel out as the consumer becomes increasingly confused. He can no more remember all these trade names than he can remember the provinces of Siberia. The process is on the way to a *reductio ad absurdum*. It becomes more and more difficult

* Read before the Section on Commercial Interests, A. PH. A., at St. Louis, August 26, 1927.

for the consumer to buy plain paint or chintzes or wall board or washing soda for the haze of 'exes' and 'ums,' 'oes' and 'ols' that surrounds them."

And so it is with the fanciful names for drug stores. "Purity Pharmacy," "Red Cross Pharmacy," "Cut Price Drug Store" and the many other coined names convey no personality to the customer. They simply register "drug store" in his mind; any kind of drug store. The name of the owner, on the other hand, registers not only "drug store," but also the personality of the proprietor, in the consciousness of the customer. Which is the better from a business standpoint, the cold, abstract mind-picture of any kind of store, or the virile, living impression of personal service that comes to mind at the mention of the name of the man responsible for the creation, development, or present status of the business?

Estimates running into the millions have been made of the value of such names as Wanamaker, Field, Ford, Tiffany and hundreds of others. The name of the individual pharmacist in association with a high type of service is proportionately valuable. Why not use it?

ABSTRACT OF DISCUSSION.

Mr. Hunsberger contended that a name other than that of the proprietor does not give the patron the information he should have relative to the one responsible for the compounding of prescriptions. He also referred to a drug store, in Philadelphia, using the name of a famous medical institution. When the owner was asked for the reason of such designation he replied that there is no more objection to doing so than naming a cigar after a famous person. He also held that the good name of the school would reflect credit on the store. Mr. Hunsberger asked the owner if he was entitled to such credit—if not, he was making wrongful use of the name; if he was deserving of the credit, he should not be ashamed to use his own name. Mr. Hunsberger said the time would come when it will be required that the one responsible for the activities of the store must place his name conspicuously before the public.

In **Mr. Rudd's** opinion the public views a store with some degree of suspicion if the name of the owner is not shown. He always wanted to know the name of the owner of the store which he patronized.

W. Bruce Philip stated that the subject of names was part of the Commercial Pharmacy course. Some stores in new sections of a city are opened with the idea of selling them after development; a change of name detracts to some extent from the value of the store; hence, when that is a purpose a name is adopted which will remain with the store. The names of streets or points of interest are often applied to stores. The deductions of students were that the name of the owner should also be made known.

Chairman Keene stated that foreigners frequently adopted fanciful names for their stores, believing that their nationality might adversely affect the trade. In his opinion a good name represented a great asset in the drug business.

Mr. Hunsberger referred to a change of location of a certain proprietor because of questionable business methods; in fact, persuaded to leave one section of the city because of such practices, this individual established himself in a locality where his prior conduct was not known.

JAPANESE PEPPERMINT CROP.

The peppermint crop of 1927 is equivalent to about 450,000 pounds of menthol crystals, as compared with 675,000 pounds for the previous year. The carry-over from 1926 production is said to have been about 250,000 pounds of menthol as compared with a carry-over from 1925 of 150,000 pounds.

The Japanese government does not make official crop forecasts, but private surveys are made by scouts of Kobe menthol trading and producing houses who visit the peppermint growing areas during the latter part of July and early August, at which time it is possible to determine the acreage devoted to peppermint, and to ascertain the extent of the first two crops in the main districts. (Vice-Consul G. J. Haering, Kobe, Japan.)

DEPARTMENT OF BUSINESS MANAGEMENT

Conducted by Paul C. Olsen.*

COMMENTS, QUESTIONS AND SUGGESTIONS ARE INVITED AND WELCOME.

Readers are invited to submit comments, criticisms and suggestions regarding the material which appears in this department. The Editor also will undertake to answer questions regarding general problems of business management. Letters of general interest will be published, but the writer's name will not be revealed without his permission.

THE PSYCHOLOGY OF EFFECTIVE DISPLAY.

(*Continued.*)

Saturday in Arhopolis was invariably a day on which the merchants did more business than on all the other days of the week put together. This Saturday, however, the people from the surrounding countryside were not busy shopping in the stores. Unmindful of the blistering Kansas sun beating down upon the shadeless Arhopolis Main street, a great and ever increasing knot of people were gathered about a gesticulating individual speaking from the precarious height of a sugar barrel.

"Now, ladies and gentlemen, watch me carefully. I hold here in my hand a genuine Geneva razor (the old-fashioned straight razor is still the favorite means of shaving among even the younger generation in Arhopolis County).

"First, I will show you the marvelously keen edge of this razor. Step in closely so you can see. I hold now in my left hand a single human hair.

"With one horizontal stroke of this razor I will cut that hair squarely in half. See?

"Now watch me carefully while I do a little whittling on this hickory stick with this self-same razor. Of course that keen edge I just showed you is gone now. The razor won't cut a hair. Look!

"Just a minute. A few easy strokes upon this Magic Razor Compound and now watch this razor. Watch it cut this hair. There!

"For the small sum of 25 cents, my friends, you, too, can have a package of this Magic Razor Compound which will put and keep the same sort of an edge on your own razor.

"Step right up and get it, folks."

The crowd was a little slow in accepting the barker's invitation, but presently two strangers from different parts of the circle bustled forward and ostentatiously placed their quarters in the barker's hand. They were his cappers; they were paid by the barker to get the crowds started to buying. Their example brought forward a dozen genuine purchasers who departed immediately. As newcomers arrived, the barker began his demonstration again.

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* Instructor of Merchandising, Wharton School of Finance and Commerce, University of Pennsylvania, Lecturer on Business Administration, Philadelphia College of Pharmacy and Science.

On the outer circle of the crowd stood Gordon Grey, local hardware merchant, whose store had been virtually depopulated of customers by the activities of this itinerant vendor.

"Can you imagine that?" he said to an acquaintance disgustedly. "Twenty-five cents for that razor-sharpening compound. Over a year ago I bought a dozen of the very same thing to sell at 10 cents a box and, I believe, I still have 11 left.

"These people around here certainly do fall for high-power salesmanship. They'll go home and use that stuff once or maybe not at all and then forget all about it. Then they'll go right on blaming me because I sold them a high-priced razor which won't keep its edge. How can it, when they won't take any care of it?"

This kind of high-pressure selling is by no means limited to Arhopolis, Kansas, and others of the smaller towns of the Middle West. It thrives to an amazing degree in what, supposedly, are the most sophisticated sections of the city of New York. It is to be seen in Chicago, Philadelphia and on the Pacific Coast.

How does it succeed? The first thing the sidewalk orator must do is attract attention. That, of course, is one of the very things a display aims to do. The street corner vendor in Arhopolis got attention to himself and his merchandise by the novelty of his presentation. People are naturally attracted to what is unusual and different.

This is true whether the attraction happens to be on a street corner or in a merchant's window or inside of his store. In fact, I have seen this very demonstration conducted in drug store windows and block the sidewalks. But in far too few of these cases did a golden harvest accrue to the enterprising druggist. He, of course, had no cappers to start the crowds to buying and even if he had, the action required would have been far too complicated to be very successful: walk in the store, wait for some one to appear, say rather shamefacedly, "I'd like some of that the man is showing in the window," and wait for wrapping and change. People are naturally backward about publicly admitting they have succumbed to selling pressure. They like to think they decided things for themselves.

That is the difficulty which may occur in a display which depends upon novelty for its attention-drawing power. It will get the attention all right, but the attention will be concentrated all upon the novelty rather than upon the merchandise to be sold thereby.

Water flowing from a glass jug in which the water remains constantly at the same level will hold a crowd fascinated for hours, but about all the enterprising druggist will get for his pains in working out and installing the display will be the opportunity of explaining endlessly how it works to perplexed and vexed customers who come in the store only to ask about it.

A department store used a dummy which rolled its eyes, lifted its eyebrow and tapped upon the window to attract attention to the display of a newly installed tobacco department. In the few days the display was in the window the store received more inquiries about the possibility of buying the doll than about the merchandise it was intended to help to sell.

George B. Evans, shrewd and successful retail druggist in Philadelphia, once undertook to beautify his store by hanging paintings in various places about the

walls. The novelty attracted much favorable attention, so much in fact that people started to ask if the pictures were for sale. Mr. Evans, able merchant, answered anxious inquiries of his surprised sales force—"By all means, yes. Anything in this store that my customers want is for sale."

The very novelty of pictures in a drug store was a very important factor in their attracting the attention which they did. In addition, pictures in themselves have a tremendous capacity for attracting attention. Several prosperous businesses have been built up solely on the idea of selling to retail merchants photographs of current events to be pasted on the window or hung in the store. Sometimes the space around the pictures is used for advertising messages about the store or the sale of some particular merchandise.

The theory is, of course, that the drawing power of such pictures, as a result of this universal interest people have in pictures, will increase the attention the window gets and thus increase its selling power. As in the case of novelties, however, the danger is that people's attention will be concentrated upon the pictures to the exclusion of the merchandise shown near it. There is a long mental jump from a picture of a grade-crossing accident to a display of Whitman's Samplers or from a panoramic view of the contestants in a beauty pageant to a Pharmacy Week window.

Thus it is perfectly apparent that the pictures which have the greatest selling power are those which are tied up directly and immediately with the display of which they are a part. All pictures have the power to attract attention; those which by their very nature must help to sell merchandise naturally are the most valuable.

That is why pictures of a product in various uses, and pictures showing the way it is made and the materials used in making it have a double selling force: the attention-drawing power of any picture plus the selling power of the picture itself.

The purely mechanical factors which aid in attracting attention to a display are size, contrast, isolation, position, motion and intensity. A giant shoe or a giant toothbrush attracts attention because it is large, not because it is a shoe or a toothbrush. The thing that attracts the attention is the size of the article shown. That is why I say that these attention-drawing factors are purely mechanical; they do not have anything to do with the things being displayed.

In contrast to this, there are other factors in attracting attention which have drawing power because of what they themselves are. These are called interest factors. A picture draws attention because it is a picture—not because it is a large picture or a small picture. A novelty attracts attention for what it is.

You will see at once that it is possible to combine in a display both mechanical and interest factors and thus make the display have the greatest possible amount of drawing power. The sidewalk vendor selling a razor stropping compound had in his favor not only the interest factor arising from the sheer novelty of his presentation, but also the mechanical qualities of motion and of intensity as engendered by the enthusiasm of his presentation.

A third interest factor in attracting attention is action. The arresting power of action results from an ever-present interest people have in what others are doing. It is one expression of the curiosity instinct. A display in which action is included

is by the very nature of action likely also to have the mechanical factor—motion—so that its drawing power is doubly effective.

Just how is the effect of action obtained on a display? It may be shown in a picture—the product in use, or being made, as I said before. The picture itself helps to attract attention and the action shown in the picture makes its drawing power just that much stronger.

Consider this: A still-life picture of a baseball resting placidly on a dark background, or the same baseball pictured just as it leaves the hand of the pitcher and the pitcher still poised in position after his throw—*which will have the greater power to attract attention?* That is why I say the stirring quality of action has a most important influence upon the attention obtained by a display, using it effectively.

Demonstrators sitting in show windows rarely fail to draw a crowd. Novelty, action, motion and position all are influences. However, just as in the other influences discussed, there is danger if action factor is not used with care and judgment. A number of my friends have sworn never again to eat hand-dipped chocolates after having had all the details of the process demonstrated before their eyes in a show window. A display to be successful must not merely attract attention. It must attract favorable attention.

There is danger in trying to use comedy as a factor in attracting attention to a display. Everybody likes to be amused, but the variations in people's tastes as to what is amusing are simply amazing. A display must please everybody; it can't afford to create unfavorable reactions. Humor can be used effectively in conversation and even in letters because a salesman knows his customers, but the appeal of the display is so general that it is safe then only to employ the deft touch of a professional humorist if comedy is to be an attention-getting factor. The professional humorist's intuitions and knowledge of human nature enable him to succeed where anyone less skilled would be bound to fail. A number of advertising campaigns and display posters have, in recent years, been built around the drawings of famous cartoonists.

Don't forget, however, that the danger which is inherent in any novelty is present in displays with a comedy motif. People will be attracted as a result of their desire to be amused, but their attention will be concentrated upon the comedy effects rather than upon the merchandise which the display is to sell. Therefore be sure when comedy is used to attract attention to a display that its use is so definitely and inseparably bound with the merchandise being sold that one cannot be apprehended without the other.

(*A fourth article in this series will appear in the next issue.*)

SEASONABLE DISPLAYS FOR OCTOBER AND NOVEMBER.

Pharmacy week
Prescription department
Surgical goods and hospital supplies
Syringes and atomizers
Hot water bottles and electric pads
Telephone order department
Olive oil
Flavoring extracts and spices
Crepe and tissue papers
Books and magazines

THE DEPARTMENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

A. C. Taylor, President, Washington, D. C. J. W. Gayle, Treasurer, Frankfort, Ky. Lucius L. Walton, Chairman of Executive Committee, Williamsport, Pa. H. C. Christensen, Secretary, 130 N. Wells St., Chicago, Ill.

ACTIVE MEMBER STATES.

Alabama	Iowa	Nebraska	South Carolina
Arizona	Kansas	Nevada	South Dakota
Arkansas	Kentucky	New Hampshire	Tennessee
Colorado	Louisiana	New Jersey	Texas
Connecticut	Maine	New Mexico	Utah
Delaware	Maryland	North Carolina	Vermont
D. of Columbia	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
Idaho	Mississippi	Oregon	Wisconsin
Illinois	Missouri	Pennsylvania	Wyoming
Indiana	Montana	Rhode Island	

THE N. A. B. P. CONVENTION.

In view of the fact that the President's Address and the outstanding interesting points of the convention were given space in the September issue of this Department, and in view of the further fact that probably before this number reaches our members the Secretary's office will have mailed to all members of State Boards of Pharmacy a synopsis of the proceedings of the convention, mention here will be confined to a few items of interest and the resolutions passed by the Association.

The convention was held in the Coronado Hotel at St. Louis, Mo., Monday and Tuesday, August 22nd and 23rd. Thirty-two States were represented by a total of 80 delegates.

It will be agreeable news to all that the Rhode Island Board of Pharmacy presented an application for active membership with full reciprocal privilege at one of the convention sessions, which was accepted by unanimous vote of the convention. The announcement was greeted by prolonged applause. A similar welcome was extended to New Jersey, another State which affiliated during the year. With these two States added, 46 States and the District of Columbia now hold active membership in the National Association Boards of Pharmacy with full reciprocal privilege under the general rules and regulations of the Association. New York holds associate membership which entitles that State to delegate representation with privilege of discussion and vote but without the reciprocal agreement. California, therefore, is the only State remaining outside of the fold. It was brought out that this State should now have been in line for membership in the N. A. B. P. but because the reciprocity clause incorporated in the recently passed law which becomes effective January 1, 1928, is inconsistent with the established system of reciprocity, it may have to be changed before that State can qualify for reciprocity.

The Secretary's report showed that 1142 reciprocal applications were issued during the past year and that while this was about 275 less than the preceding

year, it was stated that it was not an indication of a falling off in the demand for reciprocity but was accounted for by the cessation of the rush to Florida of the latter part of 1925 and the early part of 1926, when more than 300 applications were issued for that State. Taking this into consideration, the showing for the past year was above the normal.

SURVEY OF COLLEGES OF PHARMACY.

The Executive Committee, believing that a thorough and impartial survey of the colleges of pharmacy of the United States is necessary to decide which schools shall be approved for recognition by the N. A. B. P. member boards of pharmacy, in its report asked the opinion of the Association on such a project. The Committee estimated that the cost of such a survey, conducted over a period of two or three years, would be approximately $10,000. After a thorough discussion by the convention, the trend of which was favorable, the whole matter was referred back to the Executive Committee with authority to act.

Following the adjournment of the convention, the Committee met and discussed the question of the survey. As a first step, arrangements were made for having a tentative outline of the method of procedure prepared to be submitted to the annual meeting of the Committee to be held in Chicago, probably in April.

Reports presented by the various officers and committees were of more than usual interest, and while space will not permit detail here, every board member should not only read the synopsis of the proceedings of the convention when received, but should also give careful consideration to the complete reports when these later appear in the printed annual proceedings.

Resolutions and recommendations, in substance as follows, were presented and adopted:

THAT we believe it is very important to develop a system of supervised experience in Pharmacy, comparable to clinical work acquired in medicine and dentistry. We therefore urge that an effort be made in our Colleges in coöperation with the Boards to work out a program of this nature.

THAT the failures of college graduates in Board examinations are largely a local condition and should not be considered too seriously as a national question. We recommend that the college men and boards in each locality where such a condition exists get together and try to find the answer to the problem.

THAT colleges should graduate only students who have passed in all their college work with at least the general required minimum grades.

THAT when colleges revise their curricula to include commercial pharmacy work, it should not be done by the sacrifice of time now given to professional courses.

THAT coöperation to a greater extent be established between faculties of colleges of pharmacy, boards of pharmacy, and state educational systems.

THAT we favor the application of intelligence tests in order to better orient and classify the entering students in colleges of pharmacy.

THAT publicity of examination questions shall be limited to exchange between boards and colleges, if so desired, within the discretion of each, and that board questions shall not be given out for publication in drug journals.

THAT we recommend to the colleges of pharmacy and boards of pharmacy that they adopt the four-year course at as early a date as feasible, not later than 1932.

THAT inasmuch as the benefits derived from the joint district conferences held during the year have been so apparent and so universally expressed, we recommend that such conferences be continued.

THAT the members of the Boards and the Faculties be urged to procure copies of the Charters' report (Basic Material for a Pharmaceutical Curriculum) and make a careful study of the same.

THAT this Association endorse the decimal metric standardization of weights and measures for the United States as the only legal standard.

THAT all members of boards of pharmacy not now members of our parent organization, The AMERICAN PHARMACEUTICAL ASSOCIATION, affiliate with that organization.

THE DRUG CLERK UNION AND RECIPROCITY.

The passing of a resolution during the closing hours of the Illinois Pharmaceutical Association convention recommending that "excessive" reciprocity be guarded against shows, to say the least, short-sightedness on the part of the element sponsoring the resolution. This action cannot be given weight, however, as the resolution was passed when only a handful of delegates remained and therefore does not represent the opinion of the rank and file of pharmacists of Illinois.

First, what is "excessive" reciprocity? When the largest employment bureau in Chicago for pharmacists has a list of employers waiting to grab the first available registered man, does it indicate a more than normal influx into the State? Is it a protection of public welfare to allow drug stores to be run in violation of the law? What other alternative has the owner when he cannot procure registered help? What chance has the Board to get a conviction when the owner can prove that he could not obtain the required help? Have the drug clerk union agitators thought of this?

What is the complaint against reciprocity? Some pharmacists labor under the delusion that once they obtain registration in a State they can reciprocate with any of the other forty-seven boards. This is not true. Any pharmacist is limited to reciprocating only with the States in which he was eligible to take examination at the time of his original registration. Any pharmacist eligible to reciprocity with Illinois is eligible to take the examination there, and if he really wants to practice in that State, he probably will not let an examination keep him out. Any fair-minded person realizes that reciprocity is a great boon to pharmacy, and that the principles on which it is established are unbiased and fair to all.

Who benefits the most by reciprocity? Undoubtedly, the drug clerk. Then why do these agitators of the local drug union in Chicago object to reciprocity and persist in circulating false rumors? Obviously, it is a selfish attempt to use the big stick to boost wages. If their vision of such a condition were accomplished by abolishing reciprocity, would wages be permanently increased in Illinois? Will the substitution of apprentices and assistants wherever possible and operation with illegal help, coupled with the established alibi that it is impossible to secure registered help, benefit the drug clerk? These same agitators would undoubtedly be the first to howl if they could not leave Illinois by reciprocity should occasion require it.

H. C. C.

PHARMACEUTICAL ARITHMETIC.

In a recent editorial in the *American Druggist* attention is called to the fact that more candidates in examination fail in pharmaceutical arithmetic than in any other subject. The question is asked whether this apparent shortcoming

in mathematics is responsible for many of the poor business methods to be found in drug stores. The article concludes, "Doesn't this question require an answer?"

GENERAL NEWS ITEMS.

Arizona.—The Supreme Court of Arizona recently handed down a decision that the provision of the pharmacy law requiring a registered pharmacist to be in charge of a store or place of business where patent or proprietary medicines and "household remedies" are sold is unconstitutional. The Court ruled that the statute restricting the sales of such items to registered pharmacists is not in the interest of public health, but creates a monopoly in favor of the pharmacists as against other dealers.

This is a marked contrast from the Minnesota Supreme Court decision which held that the sale of aspirin be restricted to an establishment in charge of a registered pharmacist.

Colorado.—A new set of rules and regulations was adopted by the Board on July 2nd to conform with recent changes in the state pharmacy law.

Sixty applicants presented themselves for the September examination, and out of this number fourteen have been granted full registration and five assistant's certificates.

A passing percentage of 23.4 is reported for the May examination, eleven out of fifty-five candidates making the grade. This is a trifle higher than last year's average which was 21 per cent.

Ernest J. Howard, a member of the Board, is conducting classes for student and graduate nurses at the Presbyterian Hospital, Denver.

Georgia.—The following officers were elected at a recent meeting of the Board: M. D. Hodges, *President;* Jesse Mitchell, *Vice-President,* J. B. Pendergrast, *Secretary.* The new Secretary's address is 420 Moreland Ave., N. E., Atlanta, Ga. He succeeds Claude Roundtree of Thomasville.

L. C. Waldrop of Tallapoosa has been named to succeed J. E. Bush of Barnesville as a member of the Board. The appointment is effective November 4th.

Kentucky.—A proposed drug store ownership bill has been printed in full in several recent issues of the *Journal of the Kentucky Pharmaceutical Association.* The latter is the official organ of the State association and is mailed to every Registered and Assistant Pharmacist in the State monthly.

The ownership bill is along the approved lines, provides for exemption for those in the business at the time of passage, and also requires annual registration of pharmacies.

This advance publicity given to make the pharmacists of the State familiar with the provisions of the bill before it is introduced in the legislature shows a well thought out campaign. Success should result from such efforts.

Michigan.—The annual report for the fiscal year ending June 30, 1927, shows that 630 Registered Pharmacist candidates were examined during the year, of which number 227 were successful; also 338 Assistant candidates were examined, and 268 of them were successful in passing. Thirty candidates were accepted by reciprocity from other States and 28 Michigan registrants reciprocated with other States.

Missouri.—President H. W. Reuter and W. W. Largent of the Missouri Board of Pharmacy recently spent a day at Springfield, Illinois, in conference with the Illinois Board of Pharmacy and officers of the Department of Registration and Education of that State.

President Reuter is reported to have made the statement recently that the next and following examinations in Missouri will be much more difficult than heretofore, owing to the raising of pharmaceutical standards.

Missouri has been very active in prosecuting violations of the pharmacy law, and many convictions have been obtained which should serve as a warning to others.

Montana.—J. A. Riedel, Secretary of the Montana Board of Pharmacy, was one of the guests of honor at the recent South Dakota State Association convention, and made a very interesting address.

New Mexico.—David L. C. Hover, of Cloudcroft, N. Mex., has been appointed secretary of the New Mexico Board of Pharmacy to succeed Thomas J. Price of Clovis, who resigned recently.

New York.—George W. Mather of Schenectady has been appointed Secretary of the New

York Board of Pharmacy to succeed John A. Dixon of Albany, who resigned recently to take the position of inspector for the City of New York.

North Dakota.—The Board of Pharmacy will meet at the Chemistry Bldg., Agricultural College, Fargo, North Dakota, on Tuesday, November 8th, at ten o'clock A.M. for the purpose of examining applicants for registration.

Oregon.—E. E. Magee of Klamath Falls has been appointed a member of the Board of Pharmacy to succeed W. H. Schuller of Portland. Mr. Magee served at his first examination in June.

President L. B. Russell of the Oregon Pharmaceutical Association in addressing that body at its annual convention in July paid a very pleasing compliment to the pharmacy board by saying, "Our relations with the State board of pharmacy during this past year have been ideal. They have permitted the officers of this association to work and confer with them. While the laws have been strictly enforced, no druggists have been embarrassed with superfluous restrictions. They have given this Association the greatest assistance and coöperation."

Frank S. Ward, Secretary of the Board, compiled a complete résumé of the Oregon Pharmacy Law as well as the By-Laws of the Board, under date of July 1, 1927. The booklet also contains a list of all the registered pharmacists in the State giving addresses. Another feature greatly appreciated by the N. A. B. P. for its historical value is a complete list of members who have served on the Pharmacy Board since 1891 with dates of such service.

Secretary Ward was an active participant at the N. A. R. D. convention recently held at Kansas City, Mo.

Pennsylvania.—The first victory in the legal attack on the Pennsylvania Ownership Law goes to the pharmacists of the State. Three judges have ruled in the Louis K. Liggett Co. case that there is no need for an expression of opinion at this time as there has been no interference with the Liggett interests.

Under the Pennsylvania Ownership Law, the chain interests will not be permitted to open new stores unless all the officers of the corporation are registered pharmacists, and under this provision, the L. K. Liggett Company cannot expand.

South Dakota.—Eight out of thirty-one candidates who wrote the June examination at Brookings have been granted registration certificates.

The following names were placed on the eligible list for appointment by the Governor to the Board of Pharmacy: L. E. Highley of Hot Springs, Otto L. Uhlig of Sparefish and Fred Vilas of Pierre. L. E. Highley is the present incumbent and has done very efficient work during his term of office.

Board member Henry J. Schnaidt spent the summer vacation touring Yellowstone Park accompanied by his wife and son.

Tennessee.—As a result of the July meeting held in Memphis, fifteen candidates have been granted registration as pharmacist, a total of fifty-six having taken the examination.

The next examination will be held at Knoxville during the week of November 15.

Texas.—Wilford Harrison, Ex-President of the N. A. B. P., was presented with a beautiful diamond and platinum pin on behalf of the Texas Pharmaceutical Association at the recent N. A. B. P. convention, as a token of appreciation from his Texas friends. W. H. Cousins, our Texas Secretary, made the presentation in a most appropriate manner.

W. H. Cousins, owner and publisher of the *Southern Pharmaceutical Journal* as well as Secretary of the Texas Board of Pharmacy, recently had a good surprise pulled on him by his daughter and associate editor, Miss Margaret Cousins. The surprise consisted of a celebration on the twentieth birthday of the publication, and some twenty pages of congratulations and good wishes were received from a large number of friends and published in the September issue. "Cuz" replied in his characteristic and interesting style under the title, "What Shall I Say?"

Utah.—Nation-wide attention is being directed toward the recent error of an unregistered clerk in Utah, working in violation of the law of that State, who sold strychnine for quinine. Result—a customer died.

Secretary Culley of the State Association, in commenting on the case, says, "It is the purpose of the pharmacy law to protect the public from uneducated, incompetent help. The poor clerk making the error can hardly be blamed. He was hired to do the best he could. There was

no one in the employ of the firm who could tell him what to do and what not to do. None of them were qualified under the law or by experience. There is a fault somewhere."

In analyzing the cause for such negligence, Secretary Culley continues, "Under the new law all professional examining laws were brought together under one head called the department of registration, under an appointed director, who must not be a member of any of the professions he represents. Just think of one man running fifteen professions and knowing nothing of any one of them. That is the present law. It is the duty of the Director to see that each profession is protected from the uneducated and incompetent. Evidently, owing to political affiliations this particular store was allowed to run in violation of the law."

Virginia.—The Board has adopted a ruling, effective July 1, 1928, requiring all candidates for admission to the Assistant Pharmacist examination to show proof of graduation from a four-year high-school course or equivalent established to the satisfaction of the State department of education.

A REPORT OF PROGRESS ON A PROCEDURE IN PRESCRIPTION PRICING.*

BY LEONARD A. SELTZER AND A. ALTON WHEELER.

At the meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION at Philadelphia last year we presented a paper on "A Procedure in Prescription Pricing." The procedure outlined was designed to reflect, in the final result, the cost of material used, a fee for service rendered, and a further item; the latter to be so graded as to provide a sufficient margin of profit on small sales and yet avoid prohibitive prices on larger quantities. Moreover, the necessity for a differentiation reflecting the varying types of service rendered in different stores was emphasized; for, while a uniform price in any particular store is a *sine qua non* in any pricing scheme, it is not an end to be sought when considering different stores rendering different degrees of service. The writers further set out to find an algebraic formula for determining the price of all prescriptions, but failing to do so, being uncertain if it were possible, and yet feeling that the experience and method evolved was of value, made a report as stated at the last meeting.

By way of explanation of our presenting another paper on the same subject, it might be in order to say that in the further study of this problem we now believe that we have the formula sought. This discussion is, therefore, not supplanting what we tried to establish in the previous paper; it simply supplies the formula by means of which the end sought is obtained in a more simple and easy manner and the right and reason of the results more easily explained and defended, if necessary.

The search for a formula is a search for those factors which are common to all prescriptions and which (factors) contain those elements in which prescriptions are either similar to, or in which they differ from, each other and as a result of which similarity or difference they may be classified in groups. A definite value can then be given to the factor representing these elements. We believe that there are just three such factors—that they are definite and comprehensive, that not only are there three factors, but that all three are always found in every prescription, that from the customer's standpoint they cover everything that he should pay for, and from the pharmacist's standpoint they are items all of which he is entitled to collect for.

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* Section on Practical Pharmacy and Dispensing A. PH. A., St. Louis meeting, 1927.

The three factors are: The Compounding Fee "C," The Service Charge "S," and The Selling Price of Material "M."

The formula C + S + M = Price.

Prescriptions may be classified or grouped accordingly, as in their relationship to these factors they are similar to or different from each other. With reference to these factors we have found it expedient to differentiate four classes or groups:

I. Tablets and ready-made pills.

II. Capsules, Cachets, Hand-made Pills, Powders, Suppositories.

III. Liquids.

IV. Ointments.

It will be seen that in relation to these factors, prescriptions in group I are affected similarly to each other and differently from all other prescriptions and therefore form a group. By the same line of reasoning the other groups are defined. Having stated the formula and defined the groups, the next step is to make the application of the formula in the groups. This is done by considering each factor separately and in the light of the elements it represents in each group, determine its value in that group.

Factor "C."—Every prescription is received, it is recorded, a label is written, a container is provided, the material assembled and mixed if necessary. The charge for these operations comprises the compounding fee and is represented in the formula by "C."

In class I it is obvious that the value given "C" should be lower than in any of the other groups.

In classes II and III, they being affected similarly to each other, the value given "C" in these two groups should be the same—proportionately somewhat higher than in group I.

In class IV the value of "C" should be still higher.

Relatively, the figures 50, 75, 75 and 150, respectively, for their groups are those which we think will yield the most equitable results. We say relatively, because we feel that in this factor we have the opportunity for such adjustment as will modify the price so as to be commensurate with the service rendered in different establishments. This differentiation cannot be accomplished by factors "S" or "M," because both the charges for service (if based on number of doses) and the selling price of material (provided the quantity is the same) should be the same in all stores—not only from the customer's standpoint, but from the standpoint of reason as well. The value of "C" can vary, however, in proportion as the prescription is given more attention in one store than another.

Factor "S."—Every prescription involves not only the items which have been enumerated under "C," which are largely clerical or mechanical, but also professional service. Professional service is usually measured by the benefit to the client, which in a prescription is most expeditiously measured by the number of doses, as indicated by the number of pills, tablets, etc., or drachms. Another element in this service is the skill or time involved in rendering the service. These elements are represented in the formula by "S."

In class I little or no skill or time is required and the charge is mainly based on the service rendered as measured by the number supplied. We believe $^1/_2$¢ for each dose or unit is the proper value for "S" in this class.

In class II the labor expended on individual doses is a material item which is directly proportional to the number of units and should be reflected in "S." We believe that 1¢ each is the proper value for "S" in this class except in the case of suppositories where, not only on account of the labor expended, but on account of the fact that as a rule a dose serves for a longer period of time, the value of "S" is 6.

In classes III and IV, although no labor is expended on individual doses, judgment and skill are required in compounding and the service rendered is proportional to the number of doses (or drachms) given, hence we feel that 1¢ per dose is an equitable value to give to "S" in these two classes.

Factor "M."—Every prescription contains material. This material has not been accounted for in either of the other factors and should be paid for at the same price, no more, no less, as if sold over the counter since the professional and other charges have been otherwise provided for. This factor is represented in the formula by "M."

In class I the selling price is easily computed from lists which for the most part give prices on a 40% basis and if not they are easily reduced to an approximate 40% basis as follows:

net multiply by $1^2/_3$
15% multiply by $1^2/_5$
20% multiply by $1^1/_3$
25% multiply by $1^1/_5$

In determining selling prices in the other classes, other elements are involved: for instance, while there is no maximum price above which a sale cannot be made, no matter how much it costs, there is a well-recognized principle that there is a point below which a sale cannot profitably be made no matter how little it costs. Thus, there is a minimum price of 5¢ or 10¢ per ounce for certain drugs no matter how little they cost. Hence in class II we fix a minimum of 2¢ per unit—in practice we use this minimum up to 50 units at which point the selling price reaches $1.00. This minimum value for "M" obtains until the cost of material (carrying a profit of 40%) exceeds it, in which case the latter is substituted for the minimum. In classes III and IV 5¢ per ounce is the minimum value for "M." We note that 1¢ per drachm (service) + 5¢ per ounce (material) equals practically $12^1/_2$¢ per ounce no matter how many ounces are called for; hence, in practice, for the sake of expediting computation, the value of S + M = a minimum of $12^1/_2$¢ per ounce in classes III and IV. We feel that if applied to one- and two-ounce ointments the price is a little too high and we therefore, arbitrarily, set the price of $1.00 and $1.50 and in these quantities we make no additional charge for S + M, unless the material exceeds 15¢ or 25¢, respectively, in which case we add the excess to the $1.00 or $1.50 as the case may be. We find it advisable in some gargles, liniments and lotions, to omit the factor "S."

Bulk powders are charged as liquids. In case of prescriptions for proprietaries with an established selling price, we add a fixed clerical charge for affixing label only. To narcotics we add an additional fixed clerical charge.

Herewith we furnish a table illustrating our application of the "procedure" just outlined. The idea aimed at in this illustration is on the one hand to show those results which fall within the range of prices customers are in the habit of paying without changing materially (as we know by experience) the reading of our cash

Formula for Prescription Prices

C Compounding Fee + S Service Charge + M Material Selling Price

Classification	C +	S	+ M	Price per C / No.	EXAMPLES		
					$ .50	$ 1.00	$2.00
Tablets and Ready Made Pills	.50 +	No. of Doses X ½ Cent	+ Selling Price	20	.70	.80	1.00
				50	1.00	1.25	1.75
				100	1.50	2.00	3.00
				No.	C + S + M = P		
Capsules, Cachets Powders Hand Made Pills Suppositories	.75 +	No. of Doses X One Cent (Suppositories) X Six Cents	+ Selling Price (minimum 2c per unit)	20	.75+ .20+ .40 = 1.35		
				50	.75+ .50+ 1.00 = 2.25		
				100	.75+ 1.00+ 1.00 = 2.75		
				Oz.	$	$	$ $
Liquids	.75 +	No. of Doses (Drams) X One Cent	+ Selling Price (minimum 5c per oz.)	2	.75	.16	.10 = 1.00
				3	.75	.24	.15 = 1.15
				4	.75	.32	.20 = 1.25
Ointments	1.50 +	No. of Drams X One Cent	+ Selling Price (minimum 12½c per oz.)	1	1.00	.15	1.00
				2	1.50	.25	1.50
				3	1.50	.40	1.90
				4	1.50	.50	2.00

register, rather than on the other hand to show those results which will produce the ideal prices to which we think we are entitled: for the salient features of this procedure is that we can intelligently make our aim at what we want to hit and hit what we are aiming at.

NEW GERMAN ANÆSTHETICS.

German scientists in their search for improved anæsthetics that do not have to be administered through inhalation, have developed at least three narcotics that deserve more than passing notice.

E 107, known also as Avertin, owes its existence to Willstaedter (Munich) and Sauerbruch (Berlin) and is produced by Willstaedter and Duisberg of I. G. Farbenindustrie A. G., Frankfort on the Main. It is a tribromalcohol, producing narcosis through the intestines.

Another anæsthetic is so-called Pernokton, reported by Professor Dr. Bumm at the recent surgeons' congress in Berlin. It is related to Veronal and is injected into the veins, thus reaching sensitive parts through the blood circulation.

Lumbalanæsthesia is another that is administered through the spinal cord and is capable of anæsthetizing the lower half of the body particularly, but this form of taking is reported not altogether harmless.

Research continues to seek anæsthetics free from the inconveniences of inhalation with probable eventual success. (Trade Commissioner W. T. Daugherty, Berlin, Germany.)

PRINTING OF FORMULAS ON PROPRIETARY MEDICINES DEFERRED.

A large deputation of manufacturers, chemists, and wholesale and retail distributors, approached the Victorian minister for health on July 4th for the repeal of regulation 79 of the Victorian Health Act, which is gazetted to come into force on January 1, 1928. This regulation provides that all manufacturers of patent medicines shall print the formula of the contents on the label of each bottle or packet. This regulation was first gazetted in May 1924, but owing to several postponements, it has not yet come into operation.

At present, each State has its own food standard regulations, which vary to some extent. At a conference held May 1927, between the Commonwealth Health Department's representatives and the representatives of each State Health Department, the advisability of uniform regulations to apply to the whole of Australia was agreed to. In the meantime, the Minister of Health has assured the deputation that the regulation with regard to the disclosure of formulas on patent medicines will not be enforced for another 18 months. (Trade Commissioner E. G. Pauly, Melbourne, Australia.)

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

C. B. JORDAN—CHAIRMAN OF EXECUTIVE COMMITTEE, A. A. C. P., EDITOR OF THIS DEPARTMENT.

TEACHING THE MEANING OF CHEMICAL STRUCTURE.*

BY C. W. BAUER.[1]

A structural formula should reveal something about its chemical properties, physical properties and pharmacological action.

Organic Chemistry has been defined as "an edifice reared on structural formulas." We who are interested in the teaching of Organic Chemistry find this an apt definition if the meaning of structural chemistry and its limitation be clearly understood. There can hardly be a greater waste of mental energy than to memorize structural formulas without a full understanding of their meaning. The structural formula should not be taught as an end in itself but as a means to an end, a condensed way of setting down in a small space a vast amount of information.

The structural formula isn't taught until the *fundamental bases* underlying the Structural Theory of Organic Chemistry has been considered. At this stage the student knows how to determine the molecular formula. If we give the formula for ethyl alcohol as C_2H_6O the student knows how that formula is determined but if we write the structural formula $CH_3.CH_2OH$ he asks why not write the formula $CH_3.O.CH_3$. It is obvious to the student that there is a difference in these two formulas and that something more than valency must be considered to determine the correct formula. When this fact is recognized the student's question is answered by introducing the second step, in order to determine the correct formula, which is a study of chemical behavior. The following reaction will explain how the right formula is derived.

Upon treating ethyl alcohol with sodium there is a reaction which yields one atom of hydrogen for every atom of sodium per molecule of ethyl alcohol yielding a compound which has the molecular formula C_2H_5ONa. The other five atoms cannot be displaced no matter how much sodium is used. Again, when ethyl alcohol is treated with a binary halogen acid, *e. g.*, hydrochloric, under favorable conditions one atom of oxygen and one atom of hydrogen are displaced by one atom of chlorine, producing a compound that has the molecular formula C_2H_5Cl. When this compound is heated with water it is transformed into ethyl alcohol, one atom of chlorine being displaced by one atom of oxygen and a proportional quantity of hydrogen. From these two experiments and a number of others it is concluded that ethyl alcohol contains one atom of hydrogen combined differently from the other five, also that one atom of hydrogen must be closely associated with the oxygen atom forming a univalent radicle—OH; if this were not the case it would be difficult to understand how an atom of univalent chlorine could displace, or be displaced by, an atom of univalent hydrogen and an atom of bivalent oxygen.

* Presented before Teachers Conference—Chemistry Section, American Association of Colleges of Pharmacy, August 22, 1927.

[1] Creighton College of Pharmacy, Creighton University, Omaha.

Further since the compound C_2H_5Cl does not contain a hydrogen atom that can be displaced by sodium it is concluded that the particular hydrogen atom in ethyl alcohol that is displaceable by sodium, is the same as that which is closely associated with the oxygen atom, hence the structure of the sodium derivative must be $CH_3.CH_2ONa$. Therefore the structure of ethyl alcohol based upon its chemical behavior and valency considerations must be $CH_3.CH_2.OH$.

It is thus possible with the help of valency considerations and the study of chemical behavior to determine the state of combination of all the atoms of which the molecule is composed and express the result in a structural formula.

Inversely, the structural formulas represent all the chemical properties of the compounds, and are simply a short way of expressing them. Thus compounds which are found to show a similar behavior are considered to contain atoms or groups of atoms in a similar state of combination.

In addition to these properties the structural formulas aided by a study of molecular weight give us a picture of their physical properties. Any class of compounds can be taken to illustrate this point but having started on the alcohols let us use them for further consideration. A few examples will explain this relationship.

The solubility in water decreases with increase in molecular weight. Compounds from CH_3OH to C_4H_9OH are limpid liquids, those from $C_5H_{11}OH$ to $C_{11}H_{23}OH$ are of oily consistency, and from $C_{12}H_{25}OH$ up they are solids. An increase in the number of OH groups tends to increase the degree of sweetness. Methanol CH_3OH is not sweet; glycol $C_2H_4(OH)_2$ is somewhat sweet; glycerol $C_3H_5(OH)$ is sweet; while mannitol $C_6H_6(OH)_6$ is still sweeter. The lower alcohols have characteristic odors while the higher alcohols are practically odorless.

Other very important lessons are written in a structural formula, but to a student interested in Pharmacy and Medicine probably the most important is to be able to read the relationship of chemical structure to pharmacological action and its relative degree of activity. For example, let us consider the following alcohols which have been tested pharmacologically by Overton on tadpoles and by Vernon on tortoises.

Methyl alcohol	CH_3OH
Ethyl alcohol	$CH_3.CH_2OH$
Isopropyl alcohol	$(CH_3):CHOH$
Propyl alcohol	$CH_3.CH_2.CH_2OH$
Tertiary butyl alcohol	$(CH_3)_3:COH$
Secondary butyl alcohol	$CH_3.CH_2.CH(OH).CH_3$
Primary isobutyl alcohol	$(CH_3)_2:CH.CH_2OH$
Normal butyl alcohol	$CH_3CH_2.CH_2.CH_2OH$

They found that the depressant power of these alcohols on the heart of the tortoise corresponds closely with their narcotic action on the heart of the tadpole. The order of the depressant and narcotic action increases with the increase in molecular weight in the order given above. In some cases the molecular weights are the same as is seen in the isomeric butyl alcohols. In studying these and other compounds we find that the toxicity in a homologous series increases with the length of the chain. Normal butyl alcohol is more toxic than isobutyl alcohol, isobutyl alcohol greater than secondary butyl alcohol, secondary butyl alcohol

more toxic than tertiary butyl alcohol. The weakest of the butyl alcohols, however, has greater toxicity than normal propyl alcohol proving that in a homologous series molecular weight must be considered as well as the weight of the chain.

This shows a relative degree of toxicity in a homologous series whether we are studying alcohols—ethers—aldehydes, or any other class of compounds. These are the properties which are known about the alkyl radicles whether they are in combination with open-chain or closed-chain compounds. The monohydroxy alcohols were chosen in every case to show the relationship of the molecular weight and the length of the chain of the alkyl radicles to their degree of activity. Let us consider the hydrocarbon hexane which has enough carbon atoms to show the influence of the OH group upon this class of compounds. Hexane has strong anæsthetic action. Upon introducing an OH group we lessen that degree of activity though hexyl alcohol still has strong narcotic activity. Every additional OH group lessens its degree of activity and by the time we have introduced six OH groups we have Mannit $C_6H_8(OH)_6$ which has very little activity as a drug.

This is also true of the aldehydes, for example acetaldehyde CH_3CHO a hypnotic which yields aldol, $CH_3CH\begin{matrix}(OH\\(CH_2.CHO\end{matrix}$, upon condensation that has one OH group and therapeutically merely a weak hypnotic action while the aldoses like grape sugar $C_6H_{12}O_6$ which may have five OH groups have no hypnotic properties at all. These examples show in a small way the relationship of chemical structure to pharmacological action.

Summarizing briefly the most important lessons that should be taught in giving the structural formulas of drugs are to have the students read in these formulas something about their chemical properties, their physical properties and their relationship to pharmacological action.

SOURCES OF GENERAL INFORMATION.

S. Fraenkel, "Die Arzneimittel Synthese" 5th ed; Berlin 1921.
Reid, "Introduction to Organic Research."
Perkin and Kipping, "Organic Chemistry."

GREEK PHARMACEUTICAL REGULATIONS.

The problem confronting American pharmaceutical manufacturers in marketing their products in Greece is summarized herewith. There have been enacted in Greece since 1914 several decrees regulating the importation of pharmaceutical products, each differing from the other; as administered, however, the actual requirements are either: (1) Inspection and analysis by the Greek authorities, subject to fees amounting to a total of about $27 on each product; (2) the granting of a license without fee, if the importer presents a document evidencing that the product is approved by the Federal authorities of the country of origin, which document must be certified by Consular authorities (the regulations do not specify whether certificates by the U. S. Consul General in Greece or by the Greek Consul General in the U. S. are required; presumably the latter).

It has become clear through the efforts of the commercial attaché in Athens toward solving this problem that the Greek authorities require under Item 2 for products of the United States a certificate from our Bureau of Chemistry and Soils, but this Bureau has no authority under the law to issue any statements regarding the acceptability of pharmaceutical products under the Federal regulations, or regarding their free sale in this country.

SEVENTY-FIFTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, ST. LOUIS, MO., AUGUST 22–27.

ABSTRACT OF THE MINUTES OF THE GENERAL SESSIONS.

The sessions of the seventy-fifth annual meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION were held in Coronado Hotel, St. Louis, Mo. The list of members in attendance is printed in the September JOURNAL on pp. 895–897.

Some of the Committee Reports referred to in the minutes have been printed, or will be printed in later issues of the JOURNAL.

FIRST GENERAL SESSION.

President Bradley presented his address, August 23rd, at the Testimonial Dinner in his honor; it was referred to the Committee on Resolutions of the House of Delegates. The officers of the ASSOCIATION and of the Local Committee and speakers of the occasion were seated at the speakers' table. The following Ex-Presidents were in attendance at the meeting: John Uri Lloyd, J. H. Beal, H. H. Rusby, Eugene G. Eberle, John G. Godding, William B. Day, George M. Beringer, F. J. Wulling, Charles H. LaWall, S. L. Hilton, H. V. Arny, C. W. Holton and L. L. Walton; also two Past-Honorary Presidents, W. L. DuBois and Louis Emanuel. Four Past-Honorary Presidents and eighteen former Presidents are living.

President Bradley's address is printed in the September JOURNAL, pp. 810–817. It was referred to the Committee on Resolutions.

President Theodore J. Bradley called the first General Session to order at 9:20 A.M., August 24, 1927.

As the first order of business messages of congratulation to the ASSOCIATION on the occasion of its Diamond Jubilee and extending best wishes for its continued growth and success were read from Honorary President W. H. Rogers and others; these were accepted, and referred for publication, and the Secretary was instructed to reply to them.

The report of the Secretary was called for; it follows:

REPORT OF THE SECRETARY.

In submitting this second annual report as Secretary, I desire to express to the members and officers of the ASSOCIATION my sincere appreciation for the support which they have given me and for their unfailing courtesy and kindness. Such pleasant relations go a long way toward making any work agreeable and interesting.

National Formulary, Fourth Edition.—On December 1, 1925, the Midland Publishing Company reported, as stock on hand, 1328 copies Muslin, 275 copies Buckram and 88 copies Interleaved, or a total of 1691 copies. No report was received for the quarter ending March 1, 1926, but on August 25th a statement covering sales to July 1st was received. In the meantime, the greater portion of the stock on hand had been returned to the office of the ASSOCIATION in Baltimore. With the statement referred to above came the information that the Midland Publishing Company had recently been reorganized and that the account for the N. F. IV would be closed as soon as reports from the agents were received. Later the President of the Company advised that their books were being audited and that a final report would be furnished as soon as the audit was completed. Still later, he advised that the company had been liquidated and that the remainder of the stock of the N. F. IV was being returned. The attached report shows that after the stock returned was credited, 104 copies Muslin, 61 copies Buckram and 10 copies Interleaved, or a total of 175 copies, were unaccounted for by the Midland Publishing Company. The remainder of the stock is held at the Baltimore office. The records show that a total of 54,000 copies of the N. F. IV were printed and bound and that 52,309 of these were sold.

National Formulary, Fifth Edition.—Two series of this edition have been printed and bound by the Mack Printing Company. Series A consisted of 19,561 copies Buckram and 500 Interleaved and Series B of 10,023 copies Buckram, a total of 30,084 copies. To June 1, 1927, 21,017 copies Buckram and 112 Interleaved, a total of 21,129 copies, had been sold, and 86 copies had been distributed complimentary. The contract for the Agency and Sale of the N. F. V

was transferred by the Chemical Catalog Company, Inc., of New York, N. Y., to the J. B. Lippincott Company of Philadelphia, Pa., on December 1, 1926, with the consent of the AMERICAN PHARMACEUTICAL ASSOCIATION, and the unsold stock is held by the last mentioned company. During the year 1916, 15,759 copies of the N. F. IV were sold as compared with 21,129 copies of the N. F. V during the first year since it was put on sale. Under the arrangement that one-half of the net profits from the N. F. are transferred to the Research Fund, this sale brings the total of that fund to above $40,000.

The ASSOCIATION has received practically no complaints or suggested corrections for the National Formulary, Fifth Edition, and apparently it has met with general approval.

Recipe Book, First Edition.—The contract for the manufacture and for the agency and sale of the Recipe Book, First Edition, has been awarded to the J. B. Lippincott Company of Philadelphia and the book is now in preparation. It will be of about the same size and general appearance as the N. F. V and the selling price has been set at $5.00. It will be supplied only in buckram binding and will contain approximately 1623 formulas.

Year Book, Volume 14.—This volume, covering the calendar year 1925, is now in process and will be ready for delivery early in the fall. In accordance with the instructions of the Council a letter and return postal has been sent to each member of the ASSOCIATION requesting that the member indicate on the return postal whether or not a copy of this volume is desired. This method was followed in the case of Volume 13 with evident satisfaction to the members, and will result in a considerable saving to the ASSOCIATION.

Year Book, Volume 15.—Bids on the manufacture of this volume, covering the calendar year 1926, will be requested within a short time and contract has been entered into with the Board of Trustees of the U. S. P. for the inclusion of abstracts of those articles dealing with the U. S. P. which formerly appeared in the Digest of Comments on the U. S. P. and N. F. but which, for that reason, did not appear in the YEAR BOOK. This arrangement will make the YEAR BOOK much more valuable as a reference book.

Year Book, Volume 16.—Dr. H. V. Arny, in accordance with his generous offer, is preparing the manuscript for this volume during this summer and will complete it during the summer of 1928. It is hoped that Volumes 15 and 16 can be sent to the members during 1928 bringing this publication up to date.

Cost of the Publications of the Association.—As will be shown by the report of the Committee on Publications, a considerable reduction has been made in the cost of the YEAR BOOK and the JOURNAL during this year. This will enable both publications to increase their scope.

Membership.—At the close of the year 1926, the number of members suspended on account of the non-payment of dues was larger than for several years past due no doubt to the large addition to the membership during the preceding year through contributions to the Headquarters Building Fund. A collection campaign has been continued with these delinquent members during this year and I am pleased to report that to July 31st, one hundred and twenty-seven of them had paid their dues for 1926 and for 1927, thus renewing their membership and reducing the suspensions to about the usual number. This indicates that our permanent gain in membership through those members elected as Headquarters Building subscribers will be as good as usual.

Statements for dues have been sent to the members early in each month of this year beginning with February and the Secretary's financial statement attached shows that the receipts from dues from January 1st to July 31st of this year are about 22 per cent above those for the same period in 1926. The number of members owing dues for 1927 was less on July 31st than the number of members suspended on December 31, 1926.

Since the last annual meeting, a period of about eleven months, a total of 683 new members has been elected, 212 on account of the payment of dues and 468 on account of contributions to the Headquarters Building Fund, and 3 Life Members.

After deduction of losses through death, resignation, and suspension, the membership is approximately 5000, of which 156 are Life Members and 13 Honorary Members.

In his address, the President has mentioned the arrangements made for an effort to substantially increase the membership during the coming year.

Secretary's Account.—Receipts on account of Dues, the JOURNAL, the N. F., YEAR BOOKS and PROCEEDINGS, Bulletins, Badges and Bars, Buttons and Pins, and Bank Exchange are de-

posited in the Secretary's Account in the Baltimore Trust Company, and are transmitted by check to the Treasurer at regular intervals, with itemized deposit slips—as shown by the attached statement.

There are also attached detailed statements of the receipts and expenditures on account of the N. F. IV, N. F. V, YEAR BOOKS and PROCEEDINGS, Bulletins, Badges and Bars, and Buttons and Pins.

Location of the Headquarters Building.—The vote on the location of the Headquarters Building has been held under the conditions approved at the last annual meeting.

As a result of the publicity given to this vote and the request that interested cities forward a statement of their respective advantages and offers, invitations were received from the following nine cities:

Chicago, Illinois	Columbus, Ohio	Omaha, Nebraska
Cincinnati, Ohio	Madison, Wisconsin	St. Louis, Missouri
Cleveland, Ohio	New York, N. Y.	Washington, D. C.

These invitations and all information submitted with them were forwarded in the form of a pamphlet, to the members of the ASSOCIATION on February 15, 1927, with the first ballot. As each member has been made fully acquainted with them it is not necessary to refer here to these invitations beyond expressing again the deep appreciation of our ASSOCIATION for them and for the interest in the future welfare of the ASSOCIATION which they so eloquently represented.

The following cities received the greater number of votes in the order named in the first ballot:

Washington, D. C.	Cincinnati, Ohio	Madison, Wisconsin
Chicago, Illinois	St. Louis, Missouri	

and their names appeared on the second ballot which was mailed to the members on April 1, 1927.

In the second ballot, Washington, D. C., and Chicago, Ill., received the greater number of votes in the order named, and their names were submitted to the members in the third ballot which was mailed on June 1, 1927.

Washington, D. C., received the greater number of votes in the third ballot and becomes, therefore, the location of the Headquarters Building.

In order that the vote might be carried out without confusion, the Council of the ASSOCIATION directed that the ballots should be mailed only to those members of the ASSOCIATION in good standing on January 1, 1927, and those whose applications for membership were received on or before January 1, 1927, and favorably acted upon before February 1, 1927.

By direction of the President of the ASSOCIATION and the Chairman of the Council, the votes in each ballot were counted by the Secretary, the Editor of the JOURNAL, and the Assistant Secretary of the Baltimore Association of Commerce. At the opening and counting of the votes in the final ballot, a representative from the City of Chicago and from the City of Washington were present as observers. The votes cast in each ballot have been preserved.

The close coöperation now possible between the Editor of the JOURNAL and the Secretary has resulted in simplifying the work of the office and in bringing the list of members and their addresses to a correct basis.

Respectfully submitted, E. F. KELLY, *Secretary.*

SUMMARY OF RECEIPTS AND DISBURSEMENTS, SECRETARY'S OFFICE, JANUARY 1 TO JULY 31, 1927.

Receipts.

Balance on hand January 1, 1927		$13,823.94
Dues:		
Membership only, 1926	$ 4.00	
Membership only, 1927	92.00	
Membership and JOURNAL, 1925	20.00	
Membership and JOURNAL, 1926	630.00	
Membership and JOURNAL, 1927	8425.35	
Membership and JOURNAL, 1928	285.00	$ 9456.35

JOURNAL	6273.21	
National Formulary	7228.40	
Interest	37.28	
YEAR BOOKS	42.80	
Badges and Bars	21.00	
Buttons and Pins	2.00	
Miscellaneous	.15	
Bulletins	13.20	$23,074.39
Total		$36,898.33

Remitted to Treasurer.

Check No. 27	$13,823.94	
Check No. 28	2,776.85	
Check No. 29	913.83	
Check No. 30	2,104.93	
Check No. 31	4,550.05	
Check No. 32	1,639.68	
Check No. 33	1,350.26	
Check No. 34	1,001.09	
Check No. 35	647.82	
Check No. 36	736.44	
Check No. 37	5,253.05	
Check No. 38	1,027.21	
Check No. 39	534.99	$36,360.14
Balance on deposit Baltimore Trust Co.		$ 538.19

SUMMARY OF COPIES OF N. F. IV—PRINTED AND BOUND—DECEMBER 31, 1926.

Series.	Muslin.	Buckram.	Interleaved.	Total.
A	4500	5000	500	10,000
B	5700	4100	200	10,000
C	4000	1000	...	5,000
D	2700	300	...	3,000
E	2350	650	...	3,000
F	1500	1500	...	3,000
G	2000	1000	...	3,000
H	2000	1000	...	3,000
I	2500	500	...	3,000
J	2200	800	...	3,000
K	2000	1000	...	3,000
L	2500	500	...	3,000
M	2000	....	...	2,000
	35,950	17,350	700	54,000

1000 series M printed but not bound.

SUMMARY OF COPIES OF N. F. IV—SOLD, RETURNED AND UNACCOUNTED FOR BY MIDLAND PUBLISHING CO. TO DECEMBER 31, 1926.

Year.	Muslin.	Buckram.	Interleaved.	Total.
1916	7993	7279	487	15,759
1917	4472	1975	76	6,523
1918	2750	493	8	3,251
1919	2458	1116	21	3,595
1920	2459	1391	17	3,867
1921	2818	1083	5	3,906
1922	3251	1521	4	4,776

1923	3542	897	5	4,444
1924	3506	946	8	4,460
1925	1392	336	14	1,742
Total	34,641	17,037	645	52,323
Adjustments for defective copies and complimentary distribution	—19	38	—33	—14
Net sales, 1925 incl.	34,622	17,075	612	52,309
Returned in April 1926 by Midland Publishing Co., Columbus, Ohio	1,087	110	65	1,262
Returned in October 1926 by Paul B. Hoeber, New York, N. Y.	....	....	1	1
Returned in Nov. 1926 by L. S. Matthews & Co., St. Louis, Mo.	36	49	3	88
Returned in Nov., 1926 by Midland Publishing Co., Columbus, Ohio	101	55	9	165
Unaccounted for Dec. 31, 1926 by Midland Publishing Co., Columbus, Ohio	104	61	10	175
Total	35,950	17,350	700	54,000

RECEIPTS AND EXPENSES ON ACCOUNT OF N. F. V—JANUARY 1 TO DECEMBER 31, 1926.

Receipts.

Sales for quarter ending June 1, 1926	$ 3,875.76	
Use of text to June 1, 1926	25.00	
Sales for quarter ending September 1, 1926	26,569.65	
Use of text, quarter ending September 1, 1926	1,515.00	
Sales for quarter ending December 1, 1926	13,312.80	
Use of text to December 31, 1926	20.00	
Total receipts		$45,318.21

Expenses.

Henry McKeen & Son—insurance	$ 11.00	
L. A. Engel & Co.—coupon labels	59.50	
E. F. Kelly—copyrighting	1.63	
Bernard Fantus—expenses	75.00	
Otto Raubenheimer—expenses	10.00	
Herman Engelhardt—expenses	1.00	
W. L. Scoville—expenses	24.26	
Mack Printing Co.—publication	3,500.00	
Mack Printing Co.—publication	12,500.00	
Mack Printing Co.—publication	4,610.92	
Mack Printing Co.—publication	43.78	
National Conference on Pharmaceutical Research—membership	20.00	
Total expenses		$20,857.09

JANUARY 1 TO JULY 31, 1927.

Receipts.

Sales for quarter ending March 1, 1927	$ 3,520.80	
Use of text to March 1, 1927	5.00	
Sales for quarter ending June 1, 1927	3,681.60	
Use of text, quarter ending June 1, 1927	20.00	
Total receipts		$ 7,227.40

Expenses.

L. A. Engel & Co.—coupon labels	$ 4.25	
Henry McKeen & Son—insurance	12.50	
C. H. Waller—engrossing certificates	75.00	
Western Union Tel. Co.—telegram	.96	
J. B. Lippincott Co.—freight, etc.	37.40	
Mack Printing Co.—publication	7,088.18	
E. B. Flading—framing and shipping certificates	39.12	
J. B. Lippincott Co.—leather bound copy and mailing	4.91	
Total expenses		$ 7,262.32

SUMMARY OF RECEIPTS AND DISBURSEMENTS—ACCOUNT OF N. F. V TO JULY 31, 1927.

Receipts.

1926	$45,318.21	
1927 (to July 31)	7,227.40	
Total receipts		$52,545.61

Disbursements.

1919–1920	$ 1,033.89	
1921	1,169.98	
1922	404.21	
1923	227.72	
1924	95.59	
1925	236.30	
1926	20,857.09	
1927 (to July 31)	7,262.32	
Total disbursements		$31,287.10

SUMMARY OF SALES OF N. F. V, 1926.

Quarter ending June 1, 1926:

Bindings.	Copies.	Price.	Amount.
Buckram	1615	$2.40	$ 3,876.00
Interleaved	....	....	.....
			$ 3,876.00
Less allowance for postage			.24
Received by Secretary			$ 3,875.76

Quarter ending September 1, 1926:

Bindings.	Copies.	Price.	Amount.
Buckram	10,981	$2.40	$26,354.40
Interleaved	46	4.80	220.80
			$26,575.20
Less allowance for postage			5.55
Received by Secretary			$26,569.65

Quarter ending December 1, 1926:

Bindings.	Copies.	Price.	Amount.
Buckram	5425	$2.40	$13,020.00
Interleaved	61	4.80	292.80
Received by Secretary			$13,312.80

The contract for the agency and sale of the National Formulary, Fifth Edition, was transferred to the J. B. Lippincott Company, Philadelphia, Pa., on December 1, 1926, by the Chemical Catalog Company, New York, N. Y., with the approval of the AMERICAN PHARMACEUTICAL ASSOCIATION.

SUMMARY OF SALES OF N. F. V—JANUARY 1 TO JULY 31, 1927.

Quarter ending March 1, 1927:

Bindings.	Copies.	Price.	Amount.
Buckram	1461	$2.40	$ 3,506.40
Interleaved	3	4.80	14.40
Received by Secretary			$ 3,520.80

Quarter ending June 1, 1927:

Bindings.	Copies.	Price.	Amount.
Buckram	1535	$2.40	$ 3,684.00
Interleaved	2	4.80	9.60
			$ 3,693.60
Less allowance for freight			12.00
Received by Secretary			$ 3,681.60

SUMMARY OF COPIES OF N. F. V, PRINTED AND BOUND TO JUNE 1, 1927.

Series.	Buckram.	Interleaved.	Total.
A	19,561	500	20,061
B	10,023	...	10,023
	29,584	500	30,084

SUMMARY OF COPIES OF N. F. V—DISTRIBUTED COMPLIMENTARY, SOLD AND HELD IN STOCK BY CHEMICAL CATALOG COMPANY AND J. B. LIPPINCOTT COMPANY, TO JUNE 1, 1927.

	Buckram.	Interleaved.	Total.
Copies used in copyrighting and for complimentary distribution through the Mack Printing Co.	33	12	45
Copies distributed complimentary through the Chemical Catalog Co.	32	...	32
Copies sold by the Chemical Catalog Co.	18,021	107	18,128
Copies distributed complimentary through J. B. Lippincott Co.	9	...	9
Copies sold by J. B. Lippincott Co.	2,996	5	3,001
Copies held in stock by J. B. Lippincott Co.	8,493	376	8,869
	29,584	500	30,084

ACCOUNT OF YEAR BOOK, PROCEEDINGS, BULLETINS, ETC.

1. Sales:		2. Expenses:	
1926	$ 82.70	1926 (including Volume 13)	$5,383.91
1927 (to July 31)	56.00	1927 (to July 31)	108.79
Total	$138.70	Total	$5,492.70

ACCOUNT OF BADGES AND BARS, JANUARY 1 TO JULY 31, 1927.

1. Sales (seven 1926 bars)	$ 21.00	2. Expenses (ten 1926 bars)	$ 30.00

ACCOUNT OF BUTTONS AND PINS, JANUARY 1 TO JULY 31, 1927.

1. Sales	$ 2.00	2. Expenses	

President Bradley explained that these accounts are audited by public accountants.

On motion of Jacob Diner, seconded by William C. Anderson the report was received and approved by vote.

The Treasurer's report was read by Treasurer Holton; it follows:

REPORT OF THE TREASURER OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, C. W. HOLTON, TREASURER, JANUARY 1 TO JULY 31, 1927.

FUNDS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

	Aug. 31, 1926.	July 31, 1927.
Current:		
Savings and Checking Accounts	$ 1,045.19	$ 14,766.05
Secretary's Account	421.74	538.19
	$ 1,466.93	$ 15,304.24
Permanent:		
Life Membership	$ 32,855.27	$ 34,015.68
Ebert Prize	1,119.79	1,165.40
Centennial	4,427.60	4,591.62
Endowment	11,332.37	11,778.64
Ebert Legacy	6,438.30	6,687.22
Research	29,577.34	30,576.10
Headquarters Building	208,226.34	250,648.24
	$293,977.01	$339,462.90
Trust:		
Procter Monument	$ 12,917.75	$ 13,433.85
Remington Honor Medal	1,254.71	1,305.17
	$ 14,172.46	$ 14,739.02
Summary:		
Assets	$295,443.94	$354,767.14
Held in Trust	14,172.46	14,739.02
	$309,616.40	$369,506.16
Net increase Aug. 31, 1926, to July 31, 1927		$ 59,889.76
Securities held for the Association and for the Trust Funds:		
Massachusetts State 3% Bonds	$ 14,000.00	$ 14,000.00
St. Louis 4% City Bonds	12,000.00	12,000.00
U. S. Liberty Bonds 4¼%	60,500.00	60,500.00
Certificates of Deposit 4% Drovers & Mechanics National Bank	190,000.00	230,000.00
	$276,500.00	$316,500.00

The remainder of all funds, amounting to $53,006.16, is on deposit with the Boston Penny Savings Bank, Savings Account, 4½ per cent interest compounded semi-annually; with the Drovers and Mechanics National Bank, Baltimore, Md., Savings Account 4 per cent interest, compounded semi-annually; with the Baltimore Trust Company (formerly the National Exchange Bank) of Baltimore, Md., Checking Account, 3 per cent interest compounded monthly; and with the Merchants Trust Co. (formerly the Merchants and Manufacturers National Bank) of Newark, N. J., Checking Account, 3 per cent interest compounded monthly.

The growth of the Headquarters Building Fund is very satisfactory particularly in view of the general financial conditions. The total of subscriptions on July 31, 1927, was $600,193.38 and the total of collections was $250,648.24. This represents an increase in subscriptions of $62,286.50 and in collections of $42,421.90 since August 31, 1926, or a period of eleven months.

The report of the Chairman of the Campaign Committee will give details as to the number of subscribers, the number of unpaid subscriptions, etc.

The total cost of the campaign has been $38,896.92 and of this amount $13,023.94 was spent in 1924, $11,944.05 in 1925, $10,007.06 in 1926, and $3931.87 to July 31, 1927. From this should be deducted the interest received from the fund, which was $1,164.91 in 1924; $4,932.31 in 1925; $7,587.42 in 1926 and $4,531.43 to July 31, 1927, a total of $18,216.08. The cost of the campaign has been $20,684.84 from which should be deducted the contribution of $1000.00 of the Armand Company toward the expense of the campaign which leaves a net cost of $19,684.84 to collect $250,648.24 or 7.85 per cent. It cost 3.27 per cent to obtain subscriptions of $600,193.38. The net expense of the campaign has been paid out of the reserve funds of the ASSOCIATION and all moneys contributed to the Headquarters Building Fund are on deposit for that purpose.

The total expense of conducting the three ballots on the location of the Headquarters Building has been charged to the Headquarters Building Campaign appropriation and this has added considerably to the cost of the campaign for the current year.

Since January 1, 1926, the Secretary has deposited in the Secretary's account in the Baltimore Trust Company all receipts from Dues, the JOURNAL, the NATIONAL FORMULARY, YEAR BOOKS, PROCEEDINGS, Bulletins, Badges and Bars, Buttons and Pins, and Bank Exchange and these receipts are itemized in the Secretary's report. At regular intervals these receipts are transferred by check, accompanied by itemized deposit slips, to the checking account in the Merchants Trust Co. (formerly the Merchants and Manufacturers National Bank) in Newark from which account all budgeted expenses are paid.

Respectfully submitted,
CHARLES W. HOLTON, *Treasurer.*

President Bradley explained that this was not a final report, but made up by the Treasurer to inform the Association of the condition of its funds at the last possible moment. The accounts are closed at the end of the calendar year and they are audited with those of the Secretary.

It was moved by E. L. Newcomb and seconded by C. W. Johnson that the report be accepted with approval of the ASSOCIATION, and published in the JOURNAL.—Carried.

Chairman Diner reported that the House of Delegates convened at the hour set for the opening session and organized. Credentials were presented from thirty-nine states. The minutes of the previous convention, of the House of Delegates, of the reorganization and of the first meeting of the Council, were presented. Reception of fraternal delegates followed. Appointment of Committees was then proceeded with; the Chairman of the House of Delegates appointed the Committee on Resolutions and the Committee on Nominations, after which the House adjourned.

J. H. Beal moved and E. L. Newcomb seconded the motion that the report be received and made part of the records.—Carried.

President Bradley stated that in making plans for the Diamond Jubilee meeting it was decided that an address on the work of the AMERICAN PHARMACEUTICAL ASSOCIATION should be made part of the program. Former President J. H. Beal was selected because he exemplifies the spirit of the ASSOCIATION. The President referred to the St. Louis spirit and that of the AMERICAN PHARMACEUTICAL ASSOCIATION and was pleased that Dr. Beal had accepted the invitation to speak on "The Work, Principal Purposes and Ideals of the AMERICAN PHARMACEUTICAL ASSOCIATION." The members gave hearty approval and welcomed the speaker.

(The address is printed in the September JOURNAL, beginning on p. 799.)

President Bradley said that Dr. Beal had met a great opportunity in a great way.

William C. Anderson expressed his belief that the address would be remembered as an outstanding effort; he did not wish to change or amend what had been said, but Dr. Beal had omitted the name of the proposer of the resolution which created the House of Delegates; it should be added as a matter of right and record that Dr. Beal introduced the resolution.

Frederick J. Wulling was pleased to second the motion and added words of appreciation.

Editor Eberle moved that the address be mimeographed and sent to all pharmaceutical publications and reprints made for distribution among pharmaceutical associations and board members.

William C. Anderson accepted the motion.

Chairman Diner added that reprints be provided for schools and colleges of pharmacy so

that the history of the AMERICAN PHARMACEUTICAL ASSOCIATION may be made known to the students in pharmacy and along with the code of ethics serve as a background of pharmacy as well as a guide for them.

W. Bruce Philip suggested that the statement relative to the proposer of the resolution creating the House of Delegates be added as a footnote—this was concurred in by both President Bradley and the original mover of the motion.

F. J. Wulling supported the suggestion of Chairman Diner. He thought that a reader at institutions of pharmacy should bring the best items of current literature to the attention of the students, and among these messages Dr. Beal's address would have first place.

Dr. Beal in concluding his word of thanks said he had never done an hour's work, a minute's work, for pharmacy or for the AMERICAN PHARMACEUTICAL ASSOCIATION on which he had not realized 100 per cent profit.

Chairman Robert J. Ruth, of the National Pharmacy Week Committee, presented an interesting and encouraging report. (To be printed.)

W. H. Lamont supplemented the report of Chairman Ruth by speaking of the results of last year in Missouri.

Dr. Stanbury, of the Canadian Pharmaceutical Association and also member of the AMERICAN PHARMACEUTICAL ASSOCIATION, said that last year many Canadian pharmacists had suitable displays in their stores, and addresses on Pharmacy Week were made by members of Rotary and other clubs. At the recent meeting of the Canadian Pharmaceutical Association a resolution was passed that Pharmacy Week should be observed during the week adopted by pharmacists of the United States; the intention is to make Pharmacy Week a great success. He said the impress of the one Pharmacy Week will amount to little unless pharmacy receives proper consideration throughout the year. Something should be done continuously to impress the druggists of this continent that they must bring the professional side constantly before the public and before the physicians. It is the professional side of pharmacy that gives the druggist the distinctive character and enables him to merchandise more successfully than is possible without proper attention to the professional side of the business.

President Bradley explained that this part of the program was House of Delegates business and had been brought up because of the general interest.

A motion by S. L. Hilton, duly seconded, gave the Chairman and the other members of the Committee a rising vote of thanks.

The first General Session was then adjourned.

SECOND GENERAL SESSION.

The second General Session of the AMERICAN PHARMACEUTICAL ASSOCIATION was convened by President Bradley at 2:15 P.M.

The minutes of the first General Session were read by Secretary Kelly and on motion of Chairman Diner, seconded by Robert J. Ruth, and a vote—approved.

Chairman Diner referred to a letter from Honorary President, William H. Rogers. He said that all who know Mr. Rogers respect and love him and asked that a letter of acknowledgment and greetings be sent him. The motion was seconded by H. V. Arny, and carried.

Robert J. Ruth referred to the serious illness of Sir William S. Glyn-Jones who had been taken ill at the Regina Convention of the Canadian Pharmaceutical Association. Mr. Ruth moved that a message, conveying good wishes for his speedy recovery be sent to Sir William; E. G. Eberle seconded the motion.—Carried.

A report from the House of Delegates was read by Chairman Diner; on motion made by J. H. Beal, seconded by Henry B. Smith, the report was received and the several recommendations adopted. (See minutes of the first meeting of the House of Delegates.)

President Bradley called for the report of the Headquarters Building Committee.

Chairman J. H. Beal stated that the real functions of the Headquarters Building Committee had been discharged by the Campaign Committee and asked that the report of the Headquarters Campaign Committee be considered as the report of his Committee.

On motion of Robert J. Ruth, seconded by Jacob Diner, the verbal report was received.

President Bradley called on Secretary E. F. Kelly for the report of the Headquarters Building Campaign Committee.

Secretary Kelly stated that Chairman Dunning regretted that circumstances prevented his attendance much to his disappointment and asked that his greetings be extended to those present and the report read for consideration.

The report follows:

REPORT TO THE AMERICAN PHARMACEUTICAL ASSOCIATION BY THE CHAIRMAN OF THE PHARMACY HEADQUARTERS BUILDING CAMPAIGN COMMITTEE.

Gentlemen:

A financial statement carefully audited by a well-known firm of public accountants has been submitted and an analysis by States of subscriptions actually received up to August 1, 1927. This analysis shows that more than $600,000.00 has been subscribed and the financial report states that more than $250,000.00 of the amount has been received in cash and deposited in bank. More than fourteen thousand contributors subscribed to this fund, about twelve thousand of whom were retail druggists. Approximately, $231,000.00 of the entire amount was subscribed by retailers, $128,000.00 by manufacturers and $14,000.00 by wholesalers; the balance represented miscellaneous subscriptions from various types of businesses and interests. Every State in the Union subscribed a substantial amount in relation to the size and number of drug stores in the State—some, of course, did much better than others.

Your Chairman has been advised of several comparatively large subscriptions which will be made in the near future, and now that the site is settled upon, it is expected that some of the large interests in pharmacy will increase their subscriptions and some of those which have not subscribed will now contribute.

Your Committee recommends that the campiagn work be continued until at least one million dollars is obtained. If this suggestion is accepted, it is planned that a letter be directed to the manufacturers, wholesalers and a few selected prospective contributors of a philanthropic type which will bring to their attention the accomplishment of the undertaking and plans for the future with the hope of obtaining new contributions or having those which have been made increased.

Your Committee believes that the site for the building should be selected without delay, but unhurriedly. Meanwhile, inasmuch as a reasonably definite tentative plan has been developed for the building and its equipment, an architect should be selected. It would probably be best to request a limited number of architects to submit plans on a competitive basis, bearing in mind that quality should be the prime consideration and cost coming next in importance. The building operations, in the judgment of your Committee, should be started in the spring of 1929. As soon as the architectural plans are in shape, copies should be submitted to all of the national pharmaceutical associations, with an invitation to take space in the building. It would be requested of the national bodies that they would, within a reasonable time, perhaps three months, indicate whether or not space would be required. It is the belief of your Building Plan Committee that a handsome dignified architecturally perfect building, three stories high, with a basement, perhaps 60 feet front and 150 depth, should be built for approximately $300,000.00, most of which money we have on hand. Such a building would provide the necessary space for offices for the AMERICAN PHARMACEUTICAL ASSOCIATION—museum, library, research department and so forth—and additional space as offices for other national pharmaceutical organizations. In developing the building plan, it would be advisable, in the opinion of the Committee, to have sufficient ground available for the construction of wings for the extension of the building rather than planning to increase the height. This idea should be taken into consideration when the architectural plans are developed.

Respectfully submitted,

Headquarters Building Campaign Committee,

H. A. B. DUNNING, *Chairman*
E. F. KELLY
S. L. HILTON
E. L. NEWCOMB
W. BRUCE PHILIP.

The financial report and the report of the auditors, follows:

ANALYSIS BY STATES OF HEADQUARTERS SUBSCRIPTIONS ACTUALLY RECEIVED UP TO AUGUST 1, 1927

States.	Manufacturers.	Wholesalers.	Misc.	Retailers. Amt. sub.	Average.	No. of stores.	No. of sub.	Totals.
Alabama		$ 200.00	$ 1,185.00	$ 1,152.50	$1.38	835	76	$ 2,537.50
Arizona			150.00	631.50	5.26	120	22	781.50
Arkansas			825.00	2,950.00	3.38	873	113	3,775.00
California		75.00	8,285.00	4,240.20	2.65	1600	411	12,600.20
Colorado				4,174.00	7.05	592	95	4,174.00
Connecticut		100.00	3,250.00	330.00	.54	606	135	3,680.00
Delaware				100.00	.89	112	1	100.00
District of Col.		200.00	600.00	6,145.00	28.31	217	86	6,945.00
Florida		1,000.00	1,110.00	6,605.00	10.90	606	108	8,715.00
Georgia			2,395.00	1,725.00	1.54	1114	75	4,120.00
Idaho			25.00	520.00	2.11	246	16	545.00
Illinois	4,500.00	200.00	20,695.00	19,925.00	6.47	3079	970	45,320.00
Indiana	5,500.00	500.00	9,337.50	4,394.50	2.73	1607	411	19,732.00
Iowa	12,000.00		5,850.00	12,912.00	8.42	1533	405	30,762.00
Kansas		100.00	1,968.00	3,793.00	3.35	1131	198	5,861.00
Kentucky		100.00	4,175.00	1,553.50	1.89	820	194	5,828.50
Louisiana			5,227.00	435.00	.65	666	137	5,662.00
Maine			300.00	1,165.00	2.86	407	40	1,465.00
Maryland	15,234.00	2,025.00	5,160.00	16,383.20	30.34	540	393	38,802.20
Massachusetts	3,100.00	100.00	11,964.40	6,792.00	4.03	1687	570	21,956.40
Michigan	8,750.00		2,775.00	2,246.00	1.28	1742	191	13,771.00
Minnesota		200.00	3,105.00	25,622.34	27.49	932	662	28,927.34
Mississippi			2,825.00	370.00	.58	643	103	3,195.00
Missouri	1,250.00	250.00	4,660.00	8,741.00	4.00	2186	282	14,901.00
Montana			995.00	1,995.00	6.65	300	92	2,990.00
Nebraska			5,470.00	1,258.00	1.37	921	287	6,728.00
Nevada			25.00	55.00	1.03	53	4	80.00
New Hampshire			525.00	715.00	3.04	235	21	1,240.00
New Jersey	11,700.00	100.00	8,149.62	11,189.00	8.74	1280	656	31,138.62
New Mexico			125.00	150.00	1.24	122	8	275.00
New York	57,050.00	3,975.00	60,628.48	29,104.00	6.31	4612	3070	150,757.48
North Carolina		300.00	2,875.00	4,286.24	5.57	769	283	7,461.24
North Dakota			1,925.00	3,855.00	10.65	362	158	5,780.00
Ohio	1,200.00	1,000.00	17,687.50	6,899.50	3.03	2278	767	26,787.00
Oklahoma			2,390.00	935.00	.75	1241	119	3,325.00
Oregon		225.00	2,391.00	708.05	1.70	415	404	3,324.05
Pennsylvania	5,600.00	2,600.00	7,078.00	16,788.00	5.23	3213	450	32,066.00
Rhode Island			825.00	130.00	.43	302	16	955.00
South Carolina			1,580.00	1,110.00	2.13	521	98	3690.00
South Dakota			675.00	1,150.00	2.80	411	26	1,825.00
Tennessee			5,250.75	812.50	1.09	747	89	6,063.25
Texas			4,260.00	607.00	.22	2758	198	4,867.00
Utah			1,125.00	930.00	5.00	186	76	2,055.00
Vermont			200.00	85.00	.51	167	9	285.00
Virginia		150.00	1,205.00	7,580.00	11.38	666	334	8,935.00
Washington			2,565.50	1,400.00	2.13	655	166	3,965.50
West Virginia	2,500.00		810.00	2,385.00	6.23	383	89	5,695.00
Wisconsin		1,000.00	635.00	3,521.00	3.40	1035	107	5,156.00
Wyoming			25.00	275.00	2.69	102	6	300.00
National			525.60					525.60
Porto Rico			25.00	27.00			3	52.00
Cuba			75.00	80.00			6	155.00
Hawaii			25.00	150.00			4	175.00
Canada			125.00	150.00			8	275.00
Central America			25.00				1	25.00
Philippine Is.			50.00	25.00			3	75.00
Alaska				10.00			1	10.00
TOTALS	$128,384.00	$14,400.00	$226,138.35	$231,271.03				$600,193.38

TOTAL NUMBER OF SUBSCRIPTIONS—14,388.

EXHIBIT A.

AMERICAN PHARMACEUTICAL ASSOCIATION—SUBSCRIPTION ACCOUNT—JULY 19, 1927.

HEADQUARTERS BUILDING FUND.

NUMBER OF SUBSCRIPTIONS		14,388
Subscriptions Fully Paid	2,740	
Subscriptions Partially Paid	4,157	
Subscriptions upon Which No Payment Has Been Made	7,491	14,388
(Subscriptions in Arrears—7,973.)		
AMOUNT SUBSCRIBED		$600,193.38
AMOUNT RECEIVED:		
Fully Paid	$136,039.06	
Partially Paid (Actual by Trial Balance—$114,856.08)	$114,026.59	$250,065.65
BALANCE TO BE COLLECTED		$350,127.73
(Subscriptions in Arrears—$64,028.66.)		

EXHIBIT B.

AMERICAN PHARMACEUTICAL ASSOCIATION—CASH ACCOUNT—JULY 19, 1927.

HEADQUARTERS BUILDING FUND.

CASH RECEIVED AND DEPOSITED:			
Amount collected prior to June 1, 1924, and deposited in National Exchange Bank of Baltimore		$15,897.02	
Amount collected from June 3, 1924, to July 19, 1927, and deposited in Drovers & Mechanics National Bank of Baltimore, Md.		234,168.63	250,065.65
TOTAL AMOUNT RECEIVED FROM SUBSCRIBERS			
INTEREST CREDITED TO ACCOUNTS BY BANKS:			
Baltimore Trust Company (Nat. Exchange Bank)		1,162.76	
Drovers & Mechanics National Bank		16,446.39	
INTEREST RECEIVED FROM SECURITIES		817.00	18,426.15
TOTAL CASH RECEIVED			$268,491.80
WITHDRAWALS:			
Interest turned over to Dr. E. F. Kelly, Treas.			
Excess of Association's Record of Withdrawals over Bank Statements		4.32	
From Baltimore Trust Co. (Nat. Exchange Bank)		1,152.68	
From Drovers & Mechanics National Bank		16,446.39	
Withdrawals of Interest on Securities		617.00	
Securities Purchased			
City of St. Louis—4% bonds	$10,000.00		
U. S. Liberty Bonds	200.00		
(Accrued interest to date of purchase)	69.86	10,269.86	28,481.61
BALANCE IN BANKS			$240,010.19
SUMMARY OF BANK BALANCES:			
Baltimore Trust Co. (Nat. Exchange Bank)		5,841.56	
Drovers & Mechanics Nat. Bank		234,168.63	
		240,010.19	
SECURITIES OWNED:			
City of St. Louis—4% Bonds		10,000.00	
U. S. Liberty Bonds		200.00	
TOTAL CASH AND INVESTMENTS		$250,210.19	

President Bradley expressed satisfaction because the recommendations of the Committee and his recommendations paralleled. He also suggested that as the President's address had been referred to the Committee on Resolutions of the House of Delegates the Headquarters reports be received and the recommendations referred to the same Committee.

J. H. Beal made a motion to that effect and requested that before the motion was put Dr. E. L. Newcomb, who has been so closely connected with the campaign and who has contributed greatly to its success, be invited to address the session. The motion was seconded by W. C. Anderson and carried.

President Bradley called on Dr. E. L. Newcomb, who in responding said that he did not think it was necessary to dwell at length on the details of the plan of the Campaign Committee for the coming year. The report recommends a continuance of the campaign efforts and he hoped that the ASSOCIATION would concur in this recommendation; an addition of fifty or sixty thousand dollars by way of contributions could be expected during the coming year. The Campaign Committee considered it advisable, if possible, to continue the campaign for contributions until a full million dollars was available. He said that every member of the ASSOCIATION should at all times keep foremost in mind the desirability of urging those who had not contributed to do so. There were still some members of the ASSOCIATION who had not subscribed. He thanked the members for their support.

W. C. Anderson was recognized by the President and presented a beautiful gold match case to Past Honorary President W. L. DuBois on behalf of his friends as a token of their appreciation on the occasion of his 89th birthday. After outlining the activities of the celebrant Dr. Anderson referred to the high regard in which Mr. DuBois is held by the pharmacists wherever he is known and that in New York State he is affectionately referred to as "Daddy DuBois." The recipient responded briefly and was greeted by the members.

President Bradley introduced Dr. A. G. Pohlman, Professor of anatomy in the St. Louis University Medical School, as the speaker of this session. The speaker explained that the subject assigned him was "The Value of Research and Its Practical Applications," but that after giving the matter consideration he preferred to speak on "The Prevention of Disease." After the close of the interesting address President Bradley called for a rising vote of thanks to the speaker which was heartily given.

Secretary Kelly, under the item of unfinished business, read a message from the Secretary of the Pennsylvania Pharmaceutical Association. It follows:

"The Pennsylvania Pharmaceutical Association in its Fiftieth Anniversary year, extends congratulations and greetings to the AMERICAN PHARMACEUTICAL ASSOCIATION during its celebration of seventy-five years of continuous and successful activity in the interest of Pharmacy.

Our association is particularly indebted to the AMERICAN PHARMACEUTICAL ASSOCIATION, for it was through the efforts of 22 of the latter's Pennsylvania members that the Pennsylvania Pharmaceutical Association was organized fifty years ago.

With best wishes for future success,

Pennsylvania Pharmaceutical Association,
(Signed) J. G. NOH, *Secretary.*"

The second General Session of the A. PH. A. was then adjourned.

FINAL GENERAL SESSION.

The final General Session of the A. PH. A. was convened by President Theodore J. Bradley, Friday, August 26th, at 9 P.M.

Secretary Kelly read the minutes of the previous General Session which were received and approved on motion of Jacob Diner, seconded by J. H. Beal.

Secretary Kelly reported verbally on the final session of the House of Delegates. He also presented the resolutions which had been prepared by the Committee on Resolutions and discussed in the House of Delegates and adopted. (The resolutions adopted are printed on pages 885 to 889 in the September JOURNAL.)

The resolutions were read by Chairman Hunsberger.

On motion of George M. Beringer and seconded by A. G. Hulett the final report of the House of Delegates and the resolutions were adopted.

President Bradley announced that the next order of business was the presentation of the Ebert prize by the retiring Chairman of the Scientific Section, J. C. Krantz, Jr.

Chairman Krantz explained that it was customary each year to present a medal known as the Ebert prize to that member who had presented the best essay or written contribution containing an original investigation of a medicinal substance determining new properties or containing other meritorious contributions to knowledge; or, of improved methods of determining merit for the preparation of chemical or pharmaceutical products. He stated that the Committee on Ebert prize had decided to award the prize this year to L. W. Rowe for his work on "The Standardization of Digitalis and Strophanthus." The recipient expressed his appreciation of the award and stated that it was a great pleasure to receive the honor.

Chairman Krantz further expressed the hope that the Ebert prize winner would continue his work for he stated that it was this type of investigation which is remaking the science of pharmacy.

President Bradley stated that former President John Uri Lloyd had received the Ebert prize on three occasions, in past years, and the medals so received had been sent to the Smithsonian Institute at Washington for permanent preservation.

President Bradley commented on the value of the National Formulary and the work entailed in its revision, and that this work is done by members of the Committee without financial remuneration. The members of the Committee and the Council had decided it would be fitting to present an honorarium to the Chairman of the Committee and the President asked that the award be made by Vice-Chairman George M. Beringer who in well chosen words and in a happy vein spoke of the Chairman's loyalty and service to and for the AMERICAN PHARMACEUTICAL ASSOCIATION. As a member of the Committee he knew the work involved in the Chairmanship. In presenting the honorarium Mr. Beringer expressed the hope that Chairman Scoville would accept it as a slight token of appreciation and make good use of it. He was certain, if he could not, that Mrs. Scoville would be glad to help him.

In responding Chairman Scoville spoke at some length, using as a text the parable of the nobleman who before going on a journey left certain funds in trust with his servants. He made

mention of the Committee on National Formulary composed of five or six Ex-Presidents of the ASSOCIATION, three or four Remington Honor Medal men, four or five Ebert Prize men, and nearly a dozen men who had received or were very soon to receive honorary degrees. He questioned whether a better committee could be selected. These members had said to him "You go ahead and issue the bulletins and we will do the work." And now, supported by a request of this Committee, the ASSOCIATION says, "You take the reward; you reap what you didn't sow and you gather what you didn't strew." He also referred to the Certificate given to all members of the Committee, as a recognition of the services, which all the members were glad to render.

He realized that the work a man may do is recognized not merely for what he does nor for how he does it, but the angle from which it is viewed has its influence; the band master always gets the first attention. The award is another incentive to offer such service as he may to the ASSOCIATION without any visions of any further honorarium of this kind. He thanked the ASSOCIATION.

Editor Eberle said that Mrs. Whelpley—as an expression of her appreciation of the ASSOCIATION and in remembrance of our lamented member, Dr. Henry M. Whelpley—has presented to the ASSOCIATION a full set of the U. S. Pharmacopœias, a number of Dispensatories and other books relating to pharmacy of years ago; also the lantern slides which so frequently entertained the members of the ASSOCIATION and recalled past meetings and the enjoyments and good fellowship which marked these meetings. To-day she declared her desire to become a Life Member of this ASSOCIATION and has presented a check for $100.00 which pays for such membership.

President Bradley expressed the gratitude of the ASSOCIATION.

James H. Beal moved the election of Mrs. Whelpley as Life Member by a rising vote, seconded by George M. Beringer; the motion carried unanimously. Installation of officers was proceeded with; by request of President Bradley former President L. L. Walton acted as installing officer.

The Council-members-elect Messrs. Arny and Bradley chose member-elect George M. Beringer as their spokesman who said that he was glad to serve the ASSOCIATION at any time and in any capacity.

Treasurer Holton expressed his willingness to serve the ASSOCIATION; it gave him pleasure to attend the annual meetings. He stated that the Treasurer's work had been lightened by a full-time Secretary.

President Bradley said it had been his pleasure to work with Secretary Kelly and declared that the ASSOCIATION was fortunate in retaining his services. Secretary Kelly said the unfailing courtesy and kindness of the officers and members rendered his duties a pleasure and asked them to let him know how his services could be improved—he was happy to have the opportunity of serving the ASSOCIATION.

Second Vice-President Joseph Jacobs had to leave before the close of the convention.

First Vice-President Hunsberger expressed his appreciation of the honor of his election and said that whatever he had done for the ASSOCIATION and would be able to do gave him real pleasure.

President Bradley appreciated the honor of the office which he was relinquishing and had endeavored to deserve it. He found that he had the hearty coöperation and support of the other officers—this made the burden light and he looked back upon a year of very pleasant associations and a closer friendship with many. He spoke in highest terms of the splendid work of the Local Chairman and his co-workers who had succeeded admirably in making the Diamond Anniversary a success.

President Bradley then pinned the badge of office on President Johnson, congratulated him, and wished for him a successful year in office.

President Johnson said that when the ASSOCIATION celebrated its twenty-fifth anniversary he was a very small part of this world; twenty-five years later, at the invitation of Dr. Prescott, he became a member of the ASSOCIATION; now twenty-five years thereafter, he became its President and it has been twenty-five years since he took up work at the State University of Washington; he hoped that twenty-five years hence he would participate in the celebration of the ASSOCIATION'S Centenary.

He relied on the assistance of the officers and members in his work and hoped that during the year he would be able to add something for the advancement of the ASSOCIATION.

Mr. Antonow moved a rising vote of thanks to the retiring officers.—Carried.

Dr. Stanbury expressed appreciation for Dean Burbidge and himself of the kindnesses shown them; he will carry back to the Canadian Pharmaceutical Association a great deal of information and inspiration and a feeling that there is a fraternity of interest between these two associations. He extended an invitation to the members to attend the meeting of the Canadian Pharmaceutical Association in Ottawa next year and assured the visitors of a hearty welcome.

President Johnson assured the Canadian members of a welcome always and expressed the appreciation of the ASSOCIATION because of the attendance of Dr. Stanbury and Dean Burbidge and the hope that they and others would attend the meeting in Maine next year.

The Seventy-fifth annual meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION was then adjourned.

HOUSE OF DELEGATES, AMERICAN PHARMACEUTICAL ASSOCIATION

ABSTRACT OF THE MINUTES OF THE SESSIONS HELD IN CORONADO HOTEL, ST. LOUIS, MO., AUGUST 22–27, 1927.

The first session of the House of Delegates, AMERICAN PHARMACEUTICAL ASSOCIATION, was convened by Chairman Jacob Diner, at 1:40 P.M., Tuesday, August 23rd. The first order of business announced by the Chairman was roll call and the verifications of credentials.

Secretary Kelly called the roll and announced that each State Association is entitled to one voting delegate and if the voting delegate mentioned in the credentials is absent the alternate delegate may vote for him. The roll call showed that credentials had been received from eight Branches of the A. PH. A., from thirty-nine State Associations and from seven National Associations and the five Sections of the AMERICAN PHARMACEUTICAL ASSOCIATION.

The names of delegates and organizations represented follow; the name of the organization or State is in italics, names of delegates in capitals and small capitals and the names of the voting delegates in bold face.

A. PH. A. SECTIONS.

Scientific—**F. F. Berg,** Brooklyn, N. Y.
Education and Legislation—**A. L. I. Winne,** Richmond, Va.; Associate, W. J. HUSA, Gainesville, Fla.
Practical Pharmacy and Dispensing—**Clyde M. Snow,** Chicago, Ill.
Commercial Interests—**Ambrose Hunsberger,** Philadelphia, Pa; W. F. GIDLEY, Austin, Texas.
Historical Pharmacy—**L. K. Darbaker,** Pittsburgh, Pa.

A. PH. A. BRANCHES.

Baltimore—**Lloyd N. Richardson,** Bel Air, Md.; A. G. DUMEZ, Baltimore.
Chicago—**William Gray,** WILLIAM B. DAY, E. N. GATHERCOAL.
Cincinnati—**E. H. Thiesing,** FRANK H. FREERICKS.
Detroit—**L. W. Rowe,** L. A. SELTZER, WILBUR L. SCOVILLE.
Philadelphia—**J. C. Peacock,** C. H. LAWALL, ADLEY B. NICHOLS.
Pittsburgh—**Louis Emanuel.**
University of North Carolina—**E. V. Howell,** G. A. RUSSELL.
University of Washington—**Charles W. Johnson.**

NATIONAL ASSOCIATIONS.

American Association of Colleges of Pharmacy—**D. B. R. Johnson,** W. F. RUDD, H. M. FASER, E. V. HOWELL, W. J. HUSA.
American Drug Manufacturers' Association—**Mortimer Bye,** F. O. TAYLOR.
American Pharmaceutical Manufacturers' Association—**J. B. Fisk,** A. D. THORBURN, C. H. SEARLE.
National Association of Boards of Pharmacy—**W. P. Porterfield,** H. C. CHRISTENSEN, HERBERT M. LEROU.
National Wholesale Druggists' Association—**George R. Merrell,** CARL F. G. MEYER, O. L. BIEBINGER.
National Association of Retail Druggists—**William A. Oren,** SAMUEL C. DAVIS, JULIUS RIEMENSCHNEIDER, AMBROSE HUNSBERGER, SAMUEL C. HENRY.
Proprietary Association—**E. F. Kemp,** DELTA E. COMBS, JAMES H. HOWE, FRANK A. BLAIR.

STATE ASSOCIATIONS.

Alabama—**W. E. Bingham,** W. R. LITTLE, B. O. SHIFLETT.
Arizona—**Arthur G. Hulett,** E. C. STULTS, E. C. MASON, A. G. CROUCH.
Arkansas—**Booker Latimer.**
California—**W. Bruce Philip,** LAIRD J. STABLER.
Colorado—**Charles J. Clayton,** ERNEST J. HOWARD.
Connecticut—**C. Thurston Gilbert,** HERBERT M. LEROU.
Delaware—**John O. Bosley.**
Florida—**W. M. Hankins,** N. H. HUNTER, J. H. HAUGHTON.
Idaho—**E. O. Leonard.**
Illinois—**S. L. Antonow,** H. C. CHRISTENSEN, J. H. BEAL, C. H. AVERY.
Indiana—**Frank V. McCullough,** F. W. MEISSNER, B. M. KEENE, W. A. OREN, WILLIAM RUDDER.
Iowa—**George Judisch,** W. W. HAIRE.
Kansas—**A. H. King,** JONATHAN SCHMITTER, JOE DEMAIN, N. G. EDELBLUTE, L. D. HAVENHILL, D. H. SPENCER.
Kentucky—**Gordon L. Curry,** LINWOOD A. BROWN, J. W. GAYLE.
Maine—**R. M. Hescock,** E. F. CARSWELL, A. P. MANSON.
Maryland—**R. L. Swain,** JOHN C. KRANTZ, JR., G. A. BUNTING.
Massachusetts—**John G. Godding,** HERBERT PACKARD.
Michigan—**L. A. Seltzer,** R. T. LAKEY.
Minnesota—**John B. Christgau,** GUSTAV BACHMAN, CHARLES V. NETZ.
Mississippi—**Henry M. Faser,** CHARLES E. WILSON, LEW WALLACE.
Missouri—**H. W. Reuter,** W. D. AUFDENHEIDE, I. BEN MILLER, JOHN W. SCOTT, WM. A. ACKENHAUSEN.
Montana—**J. A. Riedel,** J. A. CHAPPEL.
Nebraska—**Will Brookley,** S. C. WILSON, C. D. BEATON, O. V. MCCRACKEN, FRANK CLINE, A. L. JEPPSON.
New Hampshire—**T. J. Bradley.**
New Jersey—**Robert P. Fischelis,** CHARLES W. HOLTON.
New York—**Wm. C. Anderson,** WILLIS G. GREGORY, H. V. ARNY.

North Carolina—**E. V. Zoeller,** I. W. Rose, E. V. Howell.
North Dakota—**P. H. Costello,** W. P. Porterfield, H. L. Haussaman, W. F. Sudro.
Ohio—**Frank H. Freericks,** M. N. Ford, Edward Spease.
Pennsylvania—**Lucius L. Walton,** P. Henry Utech, J. G. Noh.
Rhode Island—**Charles F. Gilson,** Frank J. Duffy, Arthur W. Boston, E. E. Calder.
South Carolina—**W. H. Ziegler,** S. C. Hodges.
South Dakota—**Arthur Williams,** Henry J. Schnaide, L. E. Highley.
Tennessee—**Samuel C. Davis,** Robert R. Ferrell, Henry Oliver, George M. Sadler.
Texas—**John A. Weeks,** F. W. Gidley, C. A. Duncan, Henry R. Henze, Walter H. Cousins, Wilford Harrison.
Utah—**John Culley.**
Virginia—**W. F. Rudd,** W. L. Lyle, A. L. I. Winne.
West Virginia—**J. Lester Hayman,** G. A. Bergy.
Wisconsin—**Edward G. Raeuber.**

THE COUNCIL.

H. V. Arny, J. H. Beal, T. J. Bradley, H. C. Christensen, W. B. Day, Jacob Diner, A. G. DuMez, E. G. Eberle, R. P. Fischelis, S. L. Hilton, C. W. Holton, A. G. Hulett, George Judisch, E. F. Kelly, J. A. Koch, C. H. LaWall.

FRATERNAL DELEGATES.

Medical Department, U. S. Army—Lt. Col. William A. Wickline.
Public Health Service—Surgeon A. J. McLauchlin.
Fordham University College of Pharmacy—Jacob Diner.
Kings County Pharmaceutical Society—Henry B. Smith.
Oregon Agricultural College, School of Pharmacy—Ernest Stuhr.
Philadelphia College of Pharmacy and Science—C. H. LaWall, E. F. Cook, J. W. Sturmer, F. P. Stroup, A. B. Nichols, M. S. Dunn.

The reading of the minutes of the last session of the House of Delegates at Philadelphia was omitted as these were published in the Journal of the Association and also distributed to the delegates accredited to the last annual meeting.

As there were more than twenty-five delegates present Chairman Diner announced that the House was duly organized. The reception of fraternal delegates was the next order of business and Lt. Col. Wickline, representing the medical service of the U. S. Army, and Dr. Stanbury, Secretary of the Canadian Pharmaceutical Association, briefly addressed the delegates.

As Vice-Chairman Leonard A. Seltzer was not present First Vice-President George Judisch of the A. Ph. A. was asked to preside during the reading of Chairman Diner's address. (The address of Chairman Diner of the House of Delegates is printed on pp. 817–819 of the September Journal.)

The address of the Chairman was on motion duly seconded and passed, accepted and referred to the Committee on Resolutions.

The Chairman appointed the following Committees of the House—Committee on Nominations, Committee on Resolutions.

COMMITTEE ON NOMINATIONS.

Henry Smith, *Chairman*, New York; F. H. Freericks, Ohio; C. H. LaWall, Pennsylvania; S. L. Hilton, D. C.; W. B. Day, Illinois; W. H. Lamont, Missouri; George Judisch, Iowa; A. G. DuMez, Maryland; H. E. Duncan, Alabama.

COMMITTEE ON RESOLUTIONS.

Ambrose Hunsberger, *Chairman*, Pennsylvania; W. Bruce Philip, California; W. A. Oren, Indiana; R. L. Swain, Maryland; W. C. Anderson, New York; C. J. Clayton, Colorado; Edward Spease, Ohio; A. G. Hulett, Arizona; Charles F. Gilson, Rhode Island.

The annual report of the Council was read by Secretary Kelly. It follows:

ANNUAL REPORT OF THE COUNCIL TO THE HOUSE OF DELEGATES.

A reorganization meeting of the Council was held on September 18, 1926, immediately after the adjournment of the final General Session of the Association. Dr. J. H. Beal acted as temporary Chairman.

The following have served as officers of the Council for 1926–1927:

Chairman, S. L. Hilton.

Vice-Chairman, C. H. LaWall.

Secretary, E. F. Kelly.

E. G. Eberle was elected Editor of the Journal; A. G. DuMez, Editor of the Year Book; W. B. Day a member of the Commission on Proprietary Medicines, and Messrs. J. C. Peacock, H. W. Youngken and G. M. Beringer members of the Committee on Pharmaceutical Research—the first mentioned to fill the unexpired term of the late Dr. H. M. Whelpley.

The Committee on National Formulary was continued until the next annual meeting.

An Executive Committee of the Council was authorized with the following membership: S. L. Hilton, C. H. LaWall, E. F. Kelly, T. J. Bradley, A. G. DuMez, J. A. Koch and E. G. Eberle.

The Committee appointments as submitted by President Bradley were approved and these with the committees of the Council have appeared in the official roster of the ASSOCIATION as published in the JOURNAL.

The Council held a joint meeting with the Executive Committee of the National Association of Retail Druggists, in Philadelphia, Pa., on Monday morning, September 21, 1926. By invitation of the Council, Former President Walton attended the meeting and presented his recommendation in reference to the consolidation of the National Association of Retail Druggists and the A. PH. A. After a general discussion of this matter the Executive Committee of the N. A. R. D. suggested that they be given the opportunity to study the proposal and this was agreed to. Such resolutions adopted and actions taken at the annual meeting of the A. PH. A. as were of mutual interest were presented and discussed after which the meeting adjourned.

It has not been found necessary to hold a meeting of the Executive Committee of the Council during the year and the business of the Council has been transacted by mail. Thirteen Council Letters covering 79 pages and submitting 128 items of business and 49 motions have been sent to the members of the Council.

Among the important items of business so transacted are the following:

The resignation of John Culley as a candidate for the Presidency of the ASSOCIATION was submitted and accepted.

The transfer of the contract for the agency and sale of the National Formulary V by the Chemical Catalog Co., Inc., of New York, N. Y., to the J. B. Lippincott Co., of Philadelphia, Pa. was arranged for and approved.

A budget of $41,070 for the expenses of the ASSOCIATION for 1927 was approved.

The contract for printing and mailing the YEAR BOOK, Volume 14, was awarded to the Lancaster Press of Lancaster, Pa. and the contract for printing and mailing the JOURNAL for 1927 to the Mack Printing Co. of Easton, Pa.

A. W. Pauley was elected as Local Secretary and arrangements completed for this annual meeting.

The contract for printing and binding the Recipe Book, First Edition, and its agency and sale was awarded to the J. B. Lippincott Co. of Philadelphia, Pa.

Twenty-five thousand dollars which had accumulated as cash balances in the Endowment, Ebert Legacy and Procter Monument Funds were invested in City of Baltimore 4 per cent registered bonds due in 1957 at 99½ and accrued interest.

A Special Committee to represent the ASSOCIATION in connection with the proposed consolidation of the N. A. R. D. and the A. PH. A. was appointed as follows: T. J. Bradley, J. H. Beal and L. L. Walton; and arrangements were made for a meeting of this committee with a like Committee from the N. A. R. D. in St. Louis on Tuesday morning, August 23rd.

Arrangements were made for the annual joint meeting of the Executive Committees of the N. A. R. D. and the A. PH. A. in St. Louis on Tuesday afternoon, August 23rd.

One meeting of the Council has been held during this annual meeting at which the following important business was completed:

To sell the $15,000 Liberty Bonds of the Second Issue held by the ASSOCIATION and called for payment on November 15, 1927 and to purchase $15,000 worth of City of Baltimore 4% registered bonds due in 1957 at 99½ and accrued interest.

Appointing the members of the Standing Committee on the History and Achievements of Pharmacy.

To continue an appropriation made for the expenses of the Committee on Pharmacy Week.

The Council nominated the *Honorary President*, the *Secretary* and the *Treasurer* of the ASSOCIATION for the year 1927–1928 and these will come before the House of Delegates at the next session.

Respectfully submitted,

E. F. KELLY, *Secretary*.

On motion duly seconded and carried the report was accepted.

The first session of the House of Delegates was then adjourned.

SECOND SESSION.

The second session of the House of Delegates, A. PH. A., was convened by Chairman Jacob Diner at 2:15 P.M., Tuesday, August 24th. He announced that unless it was requested the roll call of delegates would be omitted.

Secretary Kelly announced the name of Booker Latimer as the delegate for the Arkansas Association. There being no request for roll call business of the House of Delegates was proceeded with.

The minutes of the preceding meeting were read by Secretary Kelly, and on motion of W. F. Rudd, seconded by W. C. Anderson and a vote the minutes were adopted.

The Committee on Nominations, through Chairman Henry B. Smith, submitted the following report:

For *President:* George Judisch, Iowa; F. W. Meissner, Indiana; David F. Jones, S. Dakota.

For *First Vice-President:* Wm. P. Porterfield, N. Dakota; Alfred W. Pauley, Missouri; C. J. Clayton, Colorado.

For *Second Vice-President:* Sam A. Williams, Alabama; E. V. Zoeller, North Carolina; W. H. Zeigler, South Carolina.

For *Members of the Council:* H. C. Christensen, Illinois; H. A. B. Dunning, Maryland; Robert P. Fischelis, New Jersey; S. L. Hilton, District of Columbia; C. W. Johnson, Washington; J. A. Koch, Pennsylvania; W. F. Rudd, Virginia; Edward Spease, Ohio; L. L. Walton, Pennsylvania.

(These names will be voted on by mail ballot.)

W. C. Anderson moved that the report of the Committee on Nominations be approved and the nominations closed. The motion duly seconded and carried.

The Report of the Committee on Resolutions was called for.

Chairman Hunsberger stated that he had no report at this time.

The Report of the Committee on Place of Meeting was called for.

Chairman Bradley stated that he had the report, but that he would rather either vote on the selection of the place now or withhold the report until that part of the program was reached, as there was a verbal discussion of this report which was essential. The report was deferred.

S. L. Antonow said that during the next year a campaign for members should be instituted by the A. PH. A.; that some one should continue the various State meetings and stir up enthusiasm for the ASSOCIATION and make the retail pharmacists better acquainted with the purposes of the A. PH. A. He also desired to call attention to certain trade practices in subsidizing advertising.

Chairman Diner suggested that Mr. Antonow present his subjects in the form of resolutions and Mr. Antonow agreed to prepare such resolutions.

W. Bruce Philip stated that the California Pharmaceutical Association had passed a resolution asking the A. PH. A. to go on record as in favor of amending the Harrison Narcotic Law so as to eliminate codeine and its salts. He further stated that he was awaiting a letter containing the resolution from Secretary Jones of the California Association.

Mr. Stanbury said that the Canadian Pharmaceutical Association conferred with the Department of Health of Ottawa and demonstrated to them that codeine and apomorphine were not habit-forming drugs; as a result the Department of Health removed codeine from the schedule, but it still comes under the various pharmacy acts of the possessions which require that it must be sold absolutely as a poison and registered as such, but it is no longer a narcotic under the Act. He stated that the elimination of codeine had worked very successfully and that there were no complaints.

J. C. Munch stated that the question of codeine addiction was discussed by the Society of American Pharmacologists at their meeting in Rochester. At that time a representative of the Rockefeller Foundation stated that he had seen a number of codeine addicts. The possibility of apomorphine addiction was also considered and after considerable discussion no action was taken.

William Gray stated that a number of the most prominent physicians of Chicago had declared that codeine was not habit-forming. Mr. Seltzer said he would like to have stypticin included with the drugs under discussion.

Mr. Antonow made the statement that Col. L. G. Nutt had told him that during the last year not a single retail pharmacist was prosecuted under the Harrison Anti-narcotic Act.

Robert P. Fischelis said that the statement made by Dr. Munch should be considered in the forming of the resolution.

Mr. Philip referred to several cases in which the testimony by experts was not very convincing.

F. H. Freericks said that the matter of the partial formula disclosure had been quite freely discussed and that the subject might be considered at this time. In his opinion this was of interest to all retail pharmacists. There is a desire based at least in part upon public welfare that medicines be distributed only through the hands of qualified pharmacists and in order to make a basis for such restriction a sufficient knowledge should be given on the container of the composition of proprietaries.

Mr. Antonow corroborated the statement of Mr. Freericks by referring to some court decisions in which it was pointed out that it would be perfectly proper for the Legislature to pass a law limiting the sale of proprietaries to pharmacists if a partial disclosure of formula was given on the package. In this way it became a measure for the protection of public health.

Robert L. Swain referred to the recent Arizona decision which reversed the lower court. However, in rendering its decision the Supreme Court said the purpose of the law was very commendable, but in the absence of specific community betterment the court was compelled to hold the law unconstitutional. The decision brought out the fact that there might be a very direct connection between public welfare and the indiscriminate sale of medicine. He hoped such a resolution as proposed would be adopted by this body.

Speaking further on the Arizona decision Mr. Philip stated that the reason of the adverse ruling was that a provision in the law allowed general dealers, a certain number of miles from a drug store, to handle packages if properly labeled and originally put up by registered pharmacists. In other words, the Supreme Court intimated that if a non-registered person three miles from a drug store could handle these packages then any other person in the State could do so.

Mr. Culley desired to make a motion that the Resolutions Committee be instructed to bring in a resolution embodying a partial formula disclosure and that the ASSOCIATION stand behind the law limiting the sale of all kinds of medicine to a drug store.

Chairman Hunsberger, of the Resolutions Committee, asked that Mr. Freericks more clearly define what shall be embodied in the Resolutions.

Mr. Hulett, Secretary of the Arizona Board, stated that in his opinion a law could be formed which would restrict the sale of all medicines to pharmacists. He also thought that there should be close coöperation between the Legislative Committees of the different States.

Mr. Freericks said that in a formula disclosure law the first aim should be not to infringe upon the rights of manufacturers. That the disclosure might be relative to the potent drug, of which there is more than an average dose in each fluidounce; that in a general way should be the basis of a proper partial formula disclosure act and would emphasize the necessary knowledge that a person should have in dealing with drugs. He desired to impress that the aim of such a resolution should be to cause no injury to the proprietary rights of manufacturers.

William C. Anderson said that the form of the motion placed the Resolutions Committee at a great disadvantage that resolutions should be presented in writing and signed by two accredited delegates.

Mr. Freericks agreed to draft the resolution.

Mr. Antonow said that the proprietary rights of manufacturers should not be infringed. His purpose was simply to protect the public and at the same time provide that only persons qualified to handle drugs dispense medicines.

Mr. Culley said that inasmuch as Chairman Hunsberger had signified his willingness to bring in such a resolution and Mr. Freericks had agreed to assist in preparing the resulution his motion was unnecessary and therefore withdrew it.

The election of officers was proceeded with resulting in the election of L. A. Seltzer as *Chairman* and Ambrose Hunsberger as *Vice-Chairman* of the House of Delegates for the year 1927–1928.

The next order of business was the election of the *Honorary President*, *Secretary* and *Treasurer* of the ASSOCIATION upon nomination of the Council, the nominees being Edward Mallinckrodt for *Honorary President*, E. F. Kelly for *Secretary* and C. W. Holton for *Treasurer*. W. C. Anderson

moved that the Secretary cast one affirmative ballot for these candidates. The motion was seconded and carried.

Chairman Diner called for the Report of the Committee on Place of Meeting.

Chairman Bradley stated that it might appear a little strong to some members that the President of the ASSOCIATION is also Chairman of the Committee on Place of Meeting and for that reason explained the working of this Committee; that it was necessary for effective work to have the matter of Place of Meeting considered in advance, several years in advance, hence the Committee was more or less of a permanent one. Before making his report he asked the Chairman to recognize Dean G. A. Burbidge, who congratulated the ASSOCIATION upon the conclusion of seventy-five years of useful service. He stated that because the Canadian Association is a federation of the pharmaceutical bodies in Canada they had 100% membership. In accordance with the resolution passed at the recent meeting of the Canadian Pharmaceutical Association at Regina he was pleased to extend an invitation to the AMERICAN PHARMACEUTICAL ASSOCIATION to meet with the Canadian Pharmaceutical Association and hoped that the ASSOCIATION would accept the invitation.

Chairman Diner referred to the fact that the American Therapeutic Society had held annual meetings in Canada and that the AMERICAN PHARMACEUTICAL ASSOCIATION held one of its annual meetings about thirty years ago in Montreal.

Chairman Bradley said he would not offer a favorable recommendation if he was not familiar with the facilities of Toronto for handling convenience and there was nothing in our By-Laws which prevented a meeting in Canada but it was necessary, if we were going to undertake a meeting there, to have notice in advance, so that it will be understood that the 1932 meeting will be held in Toronto, Canada, unless circumstances prevent.

A motion to that effect was made by W. C. Anderson and seconded by S. L. Hilton.—Carried. Chairman Bradley concluded the Report of the Committee by recommending that the 1928 meeting of the A. PH. A. be held at Poland Springs, Me.

It was moved, seconded and carried that the recommendation be approved.

E. F. Carswell of the Maine Association said he was instructed to extend to this ASSOCIATON an invitation from the Governor of Maine and the membership of the Maine Pharmaceutical Association to hold the next convention of the A. PH. A. in Maine.

Mr. Philip brought greetings from Los Angeles and an invitation to have the ASSOCIATION meet there some time in the near future.

Mr. Clayton extended an invitation from various organizations in Colorado to have the A. PH. A. meet in Denver. He said that they had a fund in savings bank sufficient to take care of the entertainment of the ASSOCIATION without a levy on anybody, and he hoped that the ASSOCIATION would take advantage of the invitation before it was decided to use the fund for some other purpose.

President Johnson stated that the Pacific Coast would like to have had the meeting of the ASSOCIATION next year, but after careful consideration he thought it would be unwise to make any change in the program of the Committee on Place and therefore favored the selection of Poland Springs.

Chairman Diner said the ASSOCIATION felt highly honored by the various invitations extended for the future meetings and he knew these invitations would have careful consideration. The motion to select Poland Springs for the next place of meeting was then voted on and carried.

THIRD SESSION.

The third session of the House of Delegates was called to order at 9:15 A.M. by Chairman Diner.

On motion roll call of delegates and reading of the minutes of the previous session were dispensed with.

Secretary Kelly reported that the Council had held one adjourned session and one regular meeting and he brought the following items of business to the attention of the House:

The first, that Mr. Culley had appeared before the Council and reported that the secretaries of the State associations present had met on Tuesday, August 23rd and formed a temporary organization known as the Conference of Secretaries of Pharmaceutical Associations (see p. 842, September JOURNAL).

Another important item of business was that Chairman Bradley on the special committee of the Council reported that a conference had been held with a Committee of the N. A. R. D. to confer in reference to the proposed consultation of the two ASSOCIATIONS, and an agreement had been reached which is reported in Council Minutes, (item 148, on p. 877 of the September JOURNAL).

He also reported that a motion was also adopted that a Committee be appointed by the Council to carefully study the question of program, to see if a better arrangement of the features of the program could not be worked out and what might be known as a standard formula program adopted for the guidance of future meetings.

On motion of J. H. Beal, seconded by H. V. Arny the report was approved as presented.

H. W. Youngken presented the report of the Horticultural Nomenclature Committee which on motion by E. L. Newcomb, and seconded, was accepted. It follows:

REPORT OF THE COMMITTEE ON HORTICULTURAL NOMENCLATURE.

The Committee on Horticultural Nomenclature has been carrying on its work of encouraging the use of single standardized, scientific and common plant names for the drug and horticultural plants in American commerce.

While the work entitled "Standardized Plant Names" published by the American Joint Committee on Horticultural Nomenclature covers mostly names of garden, orchard and ornamental plants in American commerce, a considerable number of which are medicinal, there are a number of names of American medicinal plants, as well as names of foreign plants yielding drugs, in American commerce which are excluded from the first edition because of its scope.

We believe the work could be made more useful to pharmacists and the drug trade at large, if the scope of the next edition of "Standardized Plant Names" were extended to include the names of all plants yielding drugs which occur on the American market.

Respectfully submitted,

C. W. BALLARD E. N. GATHERCOAL

H. W. YOUNGKEN, *Chairman.*

When the report of the Committee on Pharmacopœia was called for J. H. Beal stated that a Spanish translation of the U. S. P. X had been completed. He explained that these translations had not been undertaken with the idea that they would be profitable or even pay for themselves but were issued because the Board of Trustees believed it was its duty to conduct a little propaganda in favor of American Pharmacy and Medicine and that it would encourage the use of the standard throughout the Spanish countries of the Western Continent. In South American countries the Health Departments are making use of the Spanish translation and the Pan-American Union in Washington is interested in the distribution. He also stated that the 9th revision of the U. S. P. had been translated into Chinese.

It was moved by H. V. Arny, seconded and carried, that the report take the usual course.

A telegram was read from Edward Mallinckrodt expressing his appreciation of the honor in electing him *Honorary President* of the ASSOCIATION.

The report of Chairman James E. Hancock of the William Procter, Jr. Memorial Fund was read. It follows:

REPORT OF THE WILLIAM PROCTER, JR. MEMORIAL FUND.

Taking for granted that the proposed AMERICAN PHARMACEUTICAL ASSOCIATION Headquarters Building will be located in Washington, D. C., the Committee on the William Procter, Jr. Memorial Fund would renew the suggestion made in its report at the last meeting of this ASSOCIATION.

Our Committee is obligated to erect a statue to the "Father of American Pharmacy" in Washington, D. C. to comport with similar memorials erected to Medicine and to Surgery in that City. Should it be agreeable to those who will have charge of the erection of the proposed Headquarters Building, we believe that we can offer them what should be a dominating feature to it by erecting the Procter Monument on a plot of ground in front of the proposed building, to create a greater public interest in the building itself and in American Pharmacy. Or what might even be a better plan, to erect the Procter Statue in the center of a mezzanine rotunda at the

entrance of the proposed building, especially if the surrounding walls of this hall would display the portraits of men prominent in American Pharmacy, thus devising our own Hall of Fame.

We appreciate that the effectiveness of any statue depends upon the perspective and the background for its proper setting; therefore, until we know what the detailed plans for the Headquarters Building may be, it is not practical to submit more definite suggestions for our work, beyond advising that we believe that we have sufficient funds to make this feature a creditable adjunct to the proposed building, and that it is the present policy of the Committee on the William Procter, Jr. Memorial Fund to wait for the plans of the Headquarters Building rather than to attempt something that might be regretted in the near future.

Respectfully submitted,

JAMES E. HANCOCK, *Chairman.*

E. L. Newcomb moved that this report be received and a copy sent to the Headquarters Building Campaign Committee. Seconded and carried.

Chairman A. G. DuMez reported that the Committee on Pharmaceutical Nomenclature had been inactive awaiting some definite instructions from the Committee of Revision of the U. S. P. He stated that the Revision Committee had organized what they termed a Research Committee and had taken up the matter of nomenclature and that it is possible the Committee on Nomenclature will work with the Research Committee and thus avoid duplication.

There being no objection the report was received.

C. B. Jordan presented the report of the Committee to Coöperate with the Committees from the A. A. C. P. and N. A. B. P. to obtain Prerequisite Legislation. It follows:

REPORT OF COMMITTEE TO COÖPERATE WITH COMMITTEES OF THE A. A. C. P. AND N. A. B. P. TO OBTAIN PREREQUISITE LEGISLATION.

Your Committee begs to submit the following report:

Secretary H. C. Christensen, of N. A. B. P., was conferred with to determine what States did not have prerequisite requirements by State law or Board ruling. Mr. Christensen responded giving the names of States without prerequisite requirements and also State association secretaries and addresses. At that time there were 18 States and the District of Columbia that did not have such requirements. Since that time, 3 States, Delaware, Wisconsin and California and the District of Columbia, have secured prerequisite legislation, leaving but 15 States without such requirement.

Your committee addressed a letter and a questionnaire to the Secretary of the State Pharmaceutical Association and the Secretary of the Board of Pharmacy in each State that did not have prerequisite requirements. The letter called attention to the rapid spread of prerequisite legislation and offered the assistance of the AMERICAN PHARMACEUTICAL ASSOCIATION in their efforts for such legislation. The questionnaire was as follows:

1. Name of State.
2. Have the pharmacists of your State ever tried to secure prerequisite legislation?
3. Has your Board of Pharmacy ever determined whether it is possible to secure this requirement by Board ruling?
4. Has prerequisite legislation ever been discussed at your State pharmaceutical meetings?
5. If not, why not?
6. If you have tried to secure legislation, to what do you attribute the failure to secure it?
7. Is the sentiment of the pharmacist of your State in favor of prerequisite legislation?
8. When do you think it may be secured?
9. Can the A. PH. A., the N. A. B. P. or the A. A. C. P. assist in securing prerequisite legislation in your State?
10. If so, how?
11. Name of person making this report.

Your committee received answers from all States except three, two of which were California and Delaware, which did not need to answer because they had secured prerequisite legislation. This leaves but one State not heard from.

An analysis of these questionnaires indicates the following:

1. Have the pharmacists of your State ever tried to secure prerequisite legislation? Eight replied "Yes" and seven "No."

2. Has your Board of Pharmacy ever determined whether it is possible to secure this requirement by Board ruling. Six replied that it was impossible. Three said "Yes" indicating it had been determined that it was impossible. Three said "No." One replied that the Board had the power to establish educational requirements, indicating that the Board did not believe it opportune to make this requirement. Two failed to answer this question.

3. Has Prerequisite Legislation ever been discussed at your State association meetings? Eleven replied "Yes." Some replies were very emphatic, such as "Yes, at every meeting for the last 14 years." Three replied "No" and one did not answer.

4. If not, why not? None of those that replied in the negative answered this question.

5. If you have tried to secure legislation, to what do you attribute the failure to secure it? Six attribute it to the pharmacists of the State opposing such legislation. One to lack of organization, one stated that a bill was in the legislature with good show of passing, one to political opposition. One replied that he did not feel that it is the thing for this State.

6. Is the sentiment of the pharmacist of your State in favor of prerequisite legislation? Three "Yes," three "No," three "Divided," two "Doubtful," two "Undetermined," one "Leaders in favor, but rank and file indifferent or hostile."

7. When do you think it may be secured? Four "In two years," two "First step has been made," two "Five to ten years," one "Hopeless," one "Immediately," one "A long time hence," one "Not until a preponderance of other States requires it," one "Quien Sabe."

8. Can the A. PH. A., the N. A. B. P., or the A. A. C. P. assist you in securing prerequisite legislation? Seven "Yes," two "No," three did not answer, one "Doubtful" and one "All work has been done."

9. If so, how? Eight did not answer this question, two "Doubtful," one "Will investigate," three "The N. A. B. P."

These answers indicate that the Boards of Pharmacy and the pharmacists are responsible, in most cases, for failure to secure prerequisite legislation. In one or two States, political opposition has blocked it. In some States a very energetic effort is being made by the leaders of pharmacy to secure prerequisite legislation, but in others the leaders are not in sympathy with it. As one man wrote, "I believe the colleges have spoiled more than one good drug clerk." These men are sincere in their views and have the courage of their convictions. It will take considerable time to change their opinions. As we see it, a campaign of education must be carried on in each State to secure the coöperation of the pharmacists, and the most effective outside forces for this campaign are the N. A. B. P. and the Colleges of Pharmacy located in the States. If the AMERICAN PHARMACEUTICAL ASSOCIATION is to assist in this work, it can best be done by sending to these States, and especially to interested parties in these States, printed material showing the advantages of such legislation.

Respectfully submitted,
C. B. JORDAN, *Chairman.*

E. L. Newcomb stated that several years ago when he was a member of this Committee a set of fifteen or twenty statements relative to the advantages of prerequisite legislation were sent out to States not having such requirements, and many letters of appreciation were received. He hoped that the recommendation will be carried out and continued year after year until all States have such legislation.

President Johnson said that he felt that a very material help could be given to States if they would call on States having prerequisite legislation. He had the assurance of Mr. Philip

that letters from adjoining States were helpful in California. The motion made by E. L. Newcomb was carried.

Secretary Kelly read the recommendations contained in the Report of the Committee on Biological Products which were referred to the Committee on Resolutions for action.

H. V. Arny stated that the Chairman of the Committee on Weights and Measures—Professor Jeannot Hostmann—died during the year. He said he had continued the mid-summer meeting of the Metric Association and recommended that affiliation with that Association be continued.

The report was accepted and the matter of appropriation was referred to the Council.

Chairman J. H. Beal reported for the Commission on Proprietary Medicines that investigation had been started to determine wherein the so-called cosmetic preparations have been responsible for such an amount of injury to the public welfare as would justify some of the proposed legislation of a restricted character. Some of them have been supposed to have medicinal value and certainly if they are injurious they come within range of consideration by the Commission. He said that up to date the Commission had been unable to discover any valid foundation for the claims made that the cosmetics had been responsible for any material injury, even in the case of such a substance as lead. He said that a request would be made of the Council to ask for an appropriation to assist in carrying on the work of investigation and that the Committee may be accorded the privilege of using the JOURNAL for information. The Committee will be pleased to have any information on the subject and, especially, if accompanied by information which would enable the Committee to trace the case.

On motion of Ambrose Hunsberger and seconded the report was referred to the Council.

Chairman Hilton explained that the Committee on State and National Legislation was signed by only two members of the Committee, two of the members having died during the year and one member is in Europe; hence, although only signed by two members, Robert P. Fischelis and S. L. Hilton, it may be considered as a unanimous report.

REPORT OF COMMITTEE ON NATIONAL AND STATE LEGISLATION.

The last session of Congress closed March 4th, at noon; all proposed legislation that had not been considered prior to this time died with the adjournment of Congress, therefore, any legislation proposed or pending will have to be re-introduced at the next session of Congress to receive consideration.

The only Bill affecting pharmacy, enacted by the last Congress, was the Caustic Acids Bill. The carrying out of its provisions and the regulations thereunder for its enforcement are placed with the Bureau of Chemistry, Department of Agriculture.

The provisions of this law will not impose any great burden upon the retail drug trade, as the present pharmacy laws have practically the same provisions. It does, however, compel others handling these commodities to comply with all of its provisions and also the requirements pertaining to proper labeling and registration of such packages, which must bear the names of proper antidotes.

Fair Trade Conditions.

The question of fair trade conditions was given some consideration and made some headway. Hearings were held on the Kelly-Capper Bill; both sides were heard but were not given enough time for properly presenting all of the facts. Much interest was finally shown by the House Committee and from present indications the Bill will again be introduced in the next Congress and will, probably, receive more favorable consideration than heretofore.

I, therefore, recommend that the ASSOCIATION again go on record favoring a Fair Trade Conditions law.

Several Bills pertaining to pharmacists in the Government Service received no consideration whatever; no doubt they will be re-introduced and I would, therefore, recommend that the Committee on the Status of the Pharmacist in the Government Service give every aid possible to these bills.

The Bill to amend the Harrison Narcotic Law, on which hearings were held at the long Session of the last Congress, which was opposed by representatives of the drug trade and the American Medical Association, received no further consideration.

Narcotic Regulations.

Regulations for enforcing the Harrison Narcotic Law are undergoing revision; all branches of the drug trade and the American Medical Association and the American Dental Association were represented at the hearings. It is expected that the new regulations will be promulgated very soon, superseding the present regulations; they will simplify the present regulations, and will clearly indicate what can and what cannot be done in handling narcotic drugs and make it much easier for the legitimate dealer of narcotic drugs, but more difficult for the dope seller or illegitimate handler of such drugs.

Alcoholic Regulations.

With the appointment of Assistant Secretary of the Treasury, Mr. Lowman, in charge of Prohibition enforcement, and the appointment of Dr. J. M. Doran as Prohibition Commissioner, the drug trade is assured of every consideration within the purview of the National Prohibition Law, and the most impartial treatment at Dr. Doran's hands to relieve existing burdens. Dr. Doran is an officer deserving of every consideration and most eminently qualified by long experience as chief chemist and as chief of the Industrial Alcohol Division of the Prohibition Unit. He has given his time and has obtained a large experience in the uses and necessities of alcohol in the industries of the country.

Hearings have been held and many vigorous protests made to some of the contemplated provisions, all of which have been carefully considered. It is believed that the new regulations to be promulgated will be fair and satisfactory to all users of alcohol and medicinal liquors.

Your *Chairman* with Secretary Kelly took up with the Income Tax Division, Internal Revenue Bureau, the question of subscriptions to the Headquarters Building Fund. After presenting data relative to the AMERICAN PHARMACEUTICAL ASSOCIATION, its objects and purposes, and filing a brief covering the various phases of the organization, we were able to secure a decision whereby donations to the Building Fund were declared to be deductible in making income tax returns. Our members will, therefore, in making their next income tax return, deduct the amount of their subscription paid during the year. Your *Chairman*, at the suggestion of Secretary Kelly, has taken up the question of deducting expenses (transportation and hotel) incident to attending the annual meetings. The Board of Tax Appeals has rendered a decision in a case wherein a claim was made by a member of the American Chemical Society that all expenses incident to attending its meeting were deductible. After due consideration the Board rendered a decision that such expenses were deductible, but this decision has not as yet been approved by the Commissioner of Internal Revenue. If the decision is approved notice will be given in the JOURNAL, so the members can, accordingly, make deductions in their Income Tax returns, which will represent quite a saving.

In closing this report as Chairman of your Committee on National Legislation, may I point out that it is most difficult for anyone actively engaged in the retail drug business to give the time and attention necessary to properly look after this work and attend on every occasion to present proper arguments.

When the Headquarters Building is completed and occupied some provision should be made for a paid officer of the organization to have entire charge of all matters pertaining to National Legislation and Executive Regulations, consulting, of course, with members conveniently located.

Respectfully submitted,
S. L. HILTON, *Chairman*
ROBERT P. FISCHELIS.

J. G. Noh said he had been in close touch with Washington and felt the ASSOCIATION was indebted to Chairman Hilton and his associates for the splendid work that had been done by them. He did not advocate legislation as a panacea for all pharmaceutical ills but it cannot be overlooked that legislation plays an important part in the conduct of the pharmacy. He had found that in promoting legislation each Committee has to carry on its efforts without support of other legislative committees, whereas coöperation would be helpful. He, therefore, presented a resolution to bring about coöperation between legislative committees.—See Resolution No. 13, September JOURNAL, p. 887 (1927).

Chairman Hunsberger said that looking after national legislative matters meant a tre-

mendous drain on Mr. Hilton's spare time, if it may be so characterized. The ASSOCIATION owed him a vote of thanks. Mr. Hunsberger brought up for consideration proposed cosmetic legislation. It seemed to be the consensus of opinion that exaggerated statements had been indulged in by proposers of such legislation. He favored coöperation of legislative committees.

Chairman Hilton favored changing the title of the committee to Committee on National Legislation.—See Resolution No. 23, p. 889, September JOURNAL.

J. H. Beal in referring to the excellent address of Chairman Hilton said that he thought the Chairman intended to express the fact that we are asking for a restoration of our common law rights of contract. We have our common law from Great Britain and no other source. In Great Britain it is freely admitted by the authorities that there is the right of contract existing in the manufacture of a controlled preparation. Dr. Beal thought there was no intention at the time the Sherman Act was passed to take away that common law right. Nevertheless it had been construed otherwise by courts. We are really not asking for price maintenance legislation. We are not asking anything which would place the slightest degree of compulsion upon any manufacturer in the United States, but we are asking that our right of contract as suggested under the common law be restored to us.

He desired to thank Chairman Hilton for his excellent report and stated that he would, when it was in order, prepare a suitable resolution stating our stand on cosmetic legislation. He said, if there was need for it he had not discovered it.

W. Bruce Philip heartily supported the remarks of Dr. Beal and was well pleased that the ASSOCIATION had such able men in and around Washington who could and would look after national legislation.

Chairman Hunsberger moved a rising vote of thanks for Chairman Hilton.

Chairman Hilton stated that the expression "price maintenance" had been so generally used that it was embodied in his report and he asked for permission to change the term.

Referring to cosmetic legislation Dean Rudd said he hoped that in drafting the bill there would be no tendency shown to decide on the question of therapeutics.

Chairman Diner called on Surgeon McLauchlin of the Public Health Service who said that he was very grateful to the Surgeon General for assigning this detail to him. While he was an outsider he had attended several of the section meetings with profit and interest. As a scientific man he expected to find the greatest interest in the Scientific Section, and he was greatly interested in some of the papers presented, but he also was intensely interested in other Section meetings which gave him an idea of the scope of this organization; the evident broadening scope challenged his admiration from a purely scientific organization; the broad statesmanship displayed in the laudable effort to bring together many divergent interests with one objective in common, namely, the advance of pharmacy. He was amazed to note the cohesion which held together such divergent groups, and if the affiliation must necessarily be loose the fact that diverse interests can get together with one common object is a most helpful augury for the future of pharmacy in the United States. He stated that, perhaps, his interest in this particular phase of the ASSOCIATION work is due to the fact that a great deal of the time of the American Public Health Association is given in an effort to weld together into an ASSOCIATION very widely divergent medical and non-medical groups. It seemed to him that the greatest usefulness, perhaps, in the future of the A. PH. A. will be in this handling of policy—in furthering a forum and perhaps the only forum in which all these divergent interests can meet on a common ground and exchange ideas.

He desired to convey the keen interest and the hearty good wishes of the Surgeon General and the officers of the Public Health Service. He said their greatest interest outside of the United States Pharmacopœia and the National Formulary is in research work; that in the Hygienic Laboratory there are two major divisions of pharmacology and chemistry. He desired to impress clearly that the Surgeon General feels that the work the A. PH. A. is doing is one of the greatest specialties of medicine and it is to be hoped that pharmacy will be brought back to the place where it belongs. He appreciated the tremendous problems which had been referred to at this meeting and while he was not in position to pass on them at this time he knew that in the hands of this ASSOCIATION in time these problems will be straightened out and this organization will be welded into a homogeneous alliance of these different interests. Surgeon McLauchlin closed his remarks by thanking the ASSOCIATION for the opportunity to address the members.

Chairman Diner invited Dr. McLauchlin to continue his attendance at the meetings of the several Sections and discuss any topic which interested him.

James H. Beal presented a resolution expressing the thanks of the A. PH. A. to the N. A. R. D. (See Resolution No. 14, September JOURNAL, 1927, p. 887.)

The resolution was received and referred to the Resolutions Committee for action.

Secretary E. F. Kelly in behalf of Chairman Lascoff of the Committee on Recipe Book and its Editor, Ivor Griffith, reported that the work of the Committee was practically completed and the manuscript had been turned over to the Council for publication.

The report was accepted.

Robert P. Fischelis presented the report of the Committee on Coöperative Publicity. It follows:

REPORT OF COMMITTEE ON COÖPERATIVE PUBLICITY.

The Drug Trade Bureau of Public Information met at Washington, D. C. on December 7, 1926.

The Director of the News Service reported that 45 Bulletins had been sent to newspapers throughout the United States during the year with very good results. The Bureau has been handicapped by a lack of funds. The total contributions from affiliated associations amounted to $1700.00. The amount of work done each year depends entirely on the finances available. Dr. Fischelis, as Director of the news service, gives his time without remuneration of any kind. He has had associated with him an experienced newspaper man who places the bulletins in the proper channels. These services together with clerical help and clipping bureau services consumed the annual appropriation.

The Director reported that unless ways and means are found to increase the amount of money available for this work it would have to be curtailed materially at a time when it should be expanded and is ready for expansion.

A committee on finance was appointed to look into this problem. It was also decided to endeavor to enlist the aid of State associations in the work and to urge the member associations to increase their financial support, if possible.

Dr. Fischelis and Mr. Christensen were reëlected, respectively, President and Secretary of the Bureau.

H. V. Arny moved that the report of the Committee be received with thanks of the ASSOCIATION. Because of the matter of finance, William B. Day amended the motion that the report be referred to the Council.

As amended, the report was accepted.

Chairman Hunsberger stated that he was ready to report on the resolutions as far as the Committee had approved them.

It was decided to act on each resolution separately and Chairman Hunsberger read the first resolution and moved its adoption. The motion was seconded and carried. He also read Resolutions Numbers 2 and 3 and moved their approval to be referred to the Council for action. There was considerable discussion relative to the resolutions on the Headquarters. The motion by William B. Day was made that these resolutions, relating to the Headquarters, be referred to the Council without recommendation. This motion was seconded by S. L. Antonow and carried.

A resolution expressing thanks to the cities which submitted invitations for the Headquarters Building was read and referred back for changes and afterwards adopted (see Resolution No. 22, p. 888, September JOURNAL).

Resolutions up to No. 12 were read and approved. It was voted that the term "Fair Trade" legislation should be used in Resolution No. 12 instead of "Price Maintenance."

Discussion on these several resolutions was participated in by Messrs. Hilton, Hunsberger, Day, Antonow, Newcomb, Beal and others. The resolutions involving finances were referred to the Council.

E. L. Newcomb, referring back to the Resolution relative to membership campaign, spoke of the value of Dr. Beal's address in that connection and said that full use of this should be made in the effort to increase the membership because it would inform those who did not know of the work, principal purposes and ideals of the A. PH. A. The address should be distributed

through the various national and State associations with a strong letter urging the members of these organizations to coöperate in increasing the membership of the A. PH. A. Like effort should be made by the different State associations. He said there were many in attendance at this meeting who could assist in this work and all of them should have with them application blanks for membership. He suggested that the National Wholesale Druggists' Association would send out a copy of the address to every member with a strong letter urging all wholesalers who are not members to affiliate.

H. V. Arny agreed with what Dr. Newcomb had said and stated that if reprints are sent by the Secretary to his office he will see that they are sent with a strong letter to 500 persons whose names are on the mailing list of the National Conference of Pharmaceutical Research.

E. S. Sater spoke of the opportunities in various States to acquaint pharmacists with the A. PH. A. and secure their membership.

S. L. Antonow supported the previous speakers and hoped that a strong and sustained effort would be made to enroll many retail pharmacists of the country in the A. PH. A.

Chairman Hunsberger arose to a question of personal privilege and referred to the headlines of a daily paper which implied that pharmacists were divided on resolutions on prohibition changes. He desired to say that in conference with a representative of a newspaper the reporter asked whether there was a resolution on prohibition before the ASSOCIATION that was going to stir up a lot of argument. He said to the reporter that there was absolutely no resolution relating to liquor prohibition before the ASSOCIATION.

Considerable dissatisfaction was expressed relative to the publicity that had been given not only in this matter but relative to other subjects.

Dean Rudd remarked that he had conversed with the reporter in a group of members, and to his utter astonishment in the next morning's paper there was a statement credited to him which had not even been mentioned during the conversation. Further discussion resulted in the Resolution which contemplates taking care of publicity at future meetings; namely, that the Council be requested to plan for the proper handling of publicity during annual meetings (Resolution No. 16, p. 887).

Chairman Hunsberger in concluding his remarks said that he simply wanted to set himself straight before his colleagues and get into the record exactly what did occur between himself and the reporter.

S. L. Hilton presented a resolution (No. 23, p. 889) to change the title of "Committee on National and State Legislation" to "Committee on National Legislation."

Secretary Kelly presented the report of the Committee on Physiologic Assaying, for Chairman Pittenger (to be printed).

The report of the Committee on Patents and Trade Marks was received and referred for publication. It follows:

REPORT OF THE COMMITTEE ON PATENTS AND TRADEMARKS.

On Friday evening, November 8, 1918, Dr. Herty, Editor of the Journal of the American Chemical Society, presented his idea of a research laboratory to the New York Section and your chairman was invited to be present and take part in the discussion. He suggested the establishment of "an institution somewhat analogous to the Mellon Institute, in which adequate provision for laboratory tests of all kinds would be made and to which, through the establishment of fellowships, manufacturing organizations could send well-trained young men for working out specific problems." And he went on to say, "Coöperation should be established between this institution and the organic laboratories of our universities, as well as with the hospitals of the country."

A somewhat similar plan was suggested by your chairman and presented to the Smithsonian Institution at Washington in May 1881. The plan, as then presented, was endorsed by the Honorable Secretary, Prof. Spencer F. Baird, as one of the most important brought to the notice of the Smithsonian during his administration. It was also endorsed by his advisers, the surgeons-general of the U. S. Army, Navy and Marine Hospital service.

The difference between the two plans was one of altruistic character. In discussing Dr. Herty's plan, Dr. Alsberg, chief chemist of the U. S. Agricultural Department, said that the plan "could not be conducted under governmental auspices, for the reason that the Government

and its experts and laboratories are working for the entire American people and cannot favor in its operation any one class of the community." The plan proposed to the Smithsonian Institution received endorsement because it was for the equal benefit of all concerned and not designed to favor any one class.

Standing in the way of any plan for therapeutic research in relation to alleged new remedies advertised to the medical profession is the question of materia medica monopoly. As stated by Prof. Wm. H. Thompson, M.D., LL.D., of New York, in his discussion of Dr. J. E. Winters' paper on antitoxin read before the New York Academy of Medicine when antitoxin was a new remedy: "The verdict about an alleged remedy must depend upon the findings of a jury whose members should not only be competent, but also so numerous and of such difference in locality and nationality that all personal or local influences can be safely left out of account. In questions of therapeutics, personal opinions or supposed personal experiences are so beset with fallacies that errors can be minimized only by the calculus of very large averages, and if the elements for these are yet not enough, we must be content to wait until they are."

It is self evident that no such system of extensive collective therapeutic research is possible in relation to monopolized and advertised new therapeutic agents. Your chairman, recognizing this fact, advocated changes in our patent and trademark laws whereby the limitation of patents to processes and machinery for manufacture could be accomplished, leaving the products themselves, and their currently used names, free to science and commerce, thus permitting their impartial discussion by the professional societies and professional press, and their admission to the Pharmacopœia and scientific pharmaco-therapeutic literature. It was hoped that such changes might be adopted and put into effect and thus open the door to a collective investigation of the newer materia medica of the kind suggested by Dr. Thompson in his discussion.

A resolution covering this suggestion was presented to the American Medical Association at the annual meeting held in Richmond in 1881, but was rejected by the Judicial Council. As the success of the plan for materia medica research presented to the Smithsonian Institution hung upon the adoption of some method whereby new products might be opened to commercial competition, your chairman consulted several leading members of the A. PH. A., including E. R. Squibb, A. E. Ebert, J. M. Maisch, Joseph P. Remington and others, and, after much discussion, Prof. Ebert suggested the advisability of taking up the subject of materia medica monopoly as the work of the A. PH. A., and had a special committee on national legislation appointed, having, as one of its objects, a complete study of the subject. Later a committee on patents and trademarks was created for more special investigation of this important subject. Of these committees your chairman has been a member from their beginning and most of the time chairman.

In the meantime your chairman has been engaged in promoting the original plan presented to the Smithsonian Institution in 1881, and he has contributed more than three hundred papers and editorials to the medical and pharmaceutical press on the subject. The plan is very comprehensive in character and has been discussed from many points of view. It includes important suggestions several of which have been taken up and practically applied. As presented to the American Medical Association in 1891 it was endorsed by a Memorial to the United States Congress. As presented to the same Association in 1901 it was editorially endorsed, and, in a modified form became the Council on Pharmacy and Chemistry.

The A. M. A. Council on Pharmacy and Chemistry is doing excellent work as we all know; but it is open to the same objection pertaining to the plan suggested by Dr. Herty, namely, it is not sufficiently altruistic to accomplish the purpose of the original plan presented to the Smithsonian in 1881. For example, the Council plan is not one with which the clinicians can coöperate without violating the principles of the medical code of ethics. Physicians cannot report the results of their observations and experiences with monopolized and advertised materia medica products without the danger of charges of collusion with the monopolists if the reports favor the use of the remedies, or, if the reports are unfavorable, run the risk of reprisal on the part of the commercial introducer.

It was the intent of your chairman to bring before you in this report a description of the original plan in detail for discussion but he has been prevented from so doing by a call to Scotland to take part in the ceremonies of unveiling the Scottish Memorial as Secretary of the memorial association. He hopes that the committee may be continued and enlarged so that the subject in all its bearings may be discussed at the next annual meeting. Now that the A. PH. A. has

been successfully reorganized it would seem appropriate for consideration how best to coöperate with the A. M. A. Council in its beneficent work. Proper coöperation between the two national associations in the development of a plan for testing the therapeutic value of new additions to the materia medica would do much to elevate the practice of pharmacy from a commercial vocation to a profession in fact as well as in name.

F. E. STEWART, *Chairman.*

Chairman L. F. Kebler said he had not completed the report on the United States Pharmacopœia. He suggested that members to be appointed on the Committee, as far as this was possible, be not members of the U. S. P. Revision Committee. No definite action was taken.

Reports were made by officers of the several Sections. They follow:

REPORTS OF THE SECTIONS.

SCIENTIFIC SECTION.

The Scientific Section held three regular sessions on Thursday morning, Thursday evening and Friday afternoon, respectively, and one joint session with the Section on Practical Pharmacy and Dispensing on Thursday evening.

The first order of business of the first session was the reading of the Chairman's address. Following the usual course of business the address was referred to a committee on Chairman's address consisting of F. F. Berg, Chairman; L. E. Warren and Mortimer Bye, with instructions to report at the final session of the Section.

This was followed by the Secretary's report covering the activities of the Secretary's office during the past year. This report showed that appeals for papers were forwarded to three hundred and twenty-five members of the Association and a request to publish the appeal for papers was forwarded to the editors of thirty Pharmaceutical Journals. The majority of the journals complied with the request and published the appeal either in its entirety or in abstract. As a result fifty-one titles of papers were received for inclusion in the program of the Section.

The remainder of the first session was devoted to the reading of seventeen papers by the author or a duly appointed representative and three papers were read by title, and the report of the Research Committee of the A. PH. A. was received.

Second Session.—During the second session eight papers were read.

Third Session.—The first part of the third session was devoted to the reading of fifteen papers by the authors or their representatives and three papers were read by title.

This was followed by the report of the Committee on Chairman's Address, which was presented by F. F. Berg. The Committee favorably commented upon the address and recommended the adoption of the Chairman's suggestion that the Scientific Section appoint a Committee to coöperate with the National Conference of Pharmaceutical Research. It was regularly moved, seconded and unanimously carried that the Scientific Section approve the recommendation and appoint a Committee of three to act in this capacity.

This was followed by a report of the Committee on Nominations which presented the following names for the various section offices for the coming year: *Chairman*, L. W. Rowe; *First Vice-Chairman*, J. C. Munch; *Second Vice-Chairman*, F. J. Bacon; *Secretary*, P. S. Pittenger; *Delegate to House of Delegates*, J. C. Krantz, Jr.

As no additional nominations were received from the floor it was duly moved, seconded and unanimously carried that one vote be cast by the *Secretary* for the unanimous election of the above officers.

Joint Session.—The first order of business of the Joint Session was the report on U. S. Pharmacopœia, which was presented by E. Fullerton Cook. This was followed by the report on National Formulary presented by Wilbur L. Scoville.

The next order of business was the report of the Committee on Ebert Prize, which was presented by J. C. Munch, who reported that after careful consideration the committee had awarded the prize to L. W. Rowe.

This was followed by a very interesting paper by H. H. Rusby entitled "Suggestions for the Improvement of the Text of the Pharmacopœia with Special Reference to the Definitions."

PAUL S. PITTENGER, *Secretary.*

SECTION ON EDUCATION AND LEGISLATION.

The Section on Education and Legislation held two interesting and profitable sessions. A number of valuable papers were read and discussed. The following resolution was adopted in substance:

"*Resolved* that it is the sense of this body that the opening of unnecessary drug stores should be discouraged." Resolution No. 7 of the Committee on Resolutions, printed on p. 886, reads:

"WHEREAS, the security, well being and health of the community depends, to a large extent, upon the proper type of professional pharmaceutical service which is determined by the professional personnel, the general fitness and equipment of the pharmacists themselves and the degree of public support received, *therefore be it*

"*Resolved* by the AMERICAN PHARMACEUTICAL ASSOCIATION, in its traditional purpose of fostering and developing the highest type of pharmaceutical service, that all persons desirous of opening new stores be earnestly urged to study the needs of communities and to refrain from opening new stores in neighborhoods that are being adequately and properly served in this important matter.

The following officers were elected for the ensuing year:

Chairman, M. N. Ford; *Vice-Chairman*, W. J. Husa; *Secretary*, A. L. I. Winne; *Delegate to House of Delegates*, Rudolph Raabe; *Alternate Delegates to House of Delegates*, John J. Grasser and Wm. J. Husa.

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

The Section on Practical Pharmacy held two sessions and one session with the Scientific Section, all of which were most interesting and a large number of papers were read and discussed.

The Section re-affirmed after considerable discussion its action of 1926 that the A. PH. A. apply for membership in the American Association of Hospital Service. This is embodied in Resolution No. 21 printed on page 888 of the September JOURNAL.

A symposium upon substances prescribed by physicians was led by Prof. E. Fullerton Cook. At the joint session with the Scientific Section Chairman Cook of the U. S. P. Revision Committee gave a report on the U. S. P. after which Chairman Nichols introduced Dr. Rusby who addressed the sections on "Suggestions for the Improvement of the Text of the Pharmacopœia with Special Reference to the Definitions." A report on the N. F. was presented by Chairman W. L. Scoville. The reading of papers was continued at the second session. A report of the Committee on Glass Standardization was made by Chairman H. V. Arny. A motion was passed that the Committee be continued and that it be urged to continue their work on the action of pharmaceutical preparations on glass containers.

The following officers were elected for the ensuing year:

Chairman, Adley B. Nichols; *First Vice-Chairman*, L. M. Monell; *Second Vice-Chairman*, J. L. Powers; *Secretary*, P. H. Dirstine; *Delegate to House of Delegates*, Clyde M. Snow.

C. V. NETZ, *Secretary*.

SECTION ON COMMERCIAL INTERESTS.

The Section on Commercial Interests held two sessions and a number of very interesting papers were presented. Quite a number of these dealt with commercial training in colleges of pharmacy and on present-day retail methods. The subjects of advertising and display are well presented in several of the papers. The following officers were elected for the ensuing year:

Chairman, C. Leonard O'Connell; *Vice-Chairman*, Denny Brann; *Secretary*, R. B. Rothrock; *Delegate to House of Delegates*, B. M. Keene.

SECTION ON HISTORICAL PHARMACY.

The Section on Historical Pharmacy held two interesting sessions. Papers were presented by Dr. Edward Kremers on the Apothecary in Literature. He also exhibited two family prescription books of the Winkler family. Ambrose Mueller exhibited quite a number of old pharmacy books and presented one on Chemistry published in Stuttgart, Germany. Leo Suppan presented a hand book on Pharmacognosy published by Prof. M. J. Schleiden. Lyman F. Kebler

read a paper on Dr. William Brown, father of the first Pharmacopœia (military) in America and with it a photograph of an oil painting of Dr. Brown.

A number of papers were presented relating to the activities of the late Dr. H. M. Whelpley. A history of the recently organized Society of the History of Pharmacy was presented by Prof. Otto Raubenheimer. A number of other papers were read dealing with various phases of history relating to pharmacy, and discussed. The report of the Historian deals to some extent with the opportunities of the Headquarters in establishing the Museum and Library.

The following officers were elected:

Chairman, W. P. Porterfield; *Secretary*, Ambrose Mueller; *Delegate to the House of Delegates*, Charles Gietner; the *Historian* is E. G. Eberle.

L. K. DARBAKER.

The Third Session of the House of Delegates was then adjourned.

FINAL SESSION.

The Final Session of the House of Delegates was called to order at 7:20 P.M. August 26th by Chairman Jacob Diner.

Roll call of the delegates was dispensed with. The minutes of the previous session were read by Secretary Kelly and approved. The report of the Committee on Standards of Drugs and Chemical Products, 1926 to 1927, was read. It follows:

REPORT OF THE COMMITTEE ON STANDARDS OF DRUGS AND CHEMICAL PRODUCTS FOR 1926–1927.

As many of the members of this committee have been actively engaged in the work of revision for the Pharmacopœia and National Formulary, our activities were for a time curtailed. Now that these books have been finished the work of the committee has been resumed and we have again turned our attention to the standards of drugs and chemicals products. The committee has assembled a list of drugs for future study and is now engaged in preparing tentative descriptions and tests for them.

At the suggestion of the National Conference on Pharmaceutical Research contact has been established between two committees of the Conference and this committee. The Conference committees are the Committee on Sources and Identification of Botanic Drugs, of which Dr. Youngken is chairman, and the Committee on Standardization of Botanic Drugs, of which Dr. Newcomb is chairman. It is hoped that greater efficiency will be obtained through such co-operation and that duplication of effort will be eliminated.

Several changes in the personnel of this committee will be necessary owing to the changed conditions and connections under which some of the members are now working. With the filling by the Council of the vacancies caused by these changes, and by the expiration of the terms of three of our members, further work will be done along the line of the standardization of drugs and chemicals not official in the Pharmacopœia or the Formulary.

B. L. MURRAY, *Chairman.*

The report of the Committee on the Status of Pharmacists in the Government Service was read and accepted. (To be printed.)

Chairman Hunsberger read further resolutions which were discussed and approved. (See Resolutions printed in the September JOURNAL on pp. 885 to 889.)

Resolution No. 3, that the Chairman of the House of Delegates visit State associations, was approved as far as this would be possible. In commenting thereon, William B. Day said that he was in favor of the resolution but thought that the Secretary should visit as many of the State associations as was possible, and also that other officers and members be delegated to make such visits. (See Resolution No. 3 and Resolution No. 24.)

Recommendations in the report of the Committee on Biological Products were emdodied in Resolution No. 17. (See p. 887.)

After some further discussion by S. L. Antonow, A. G. Hulett and Chairman Hunsberger the resolution on partial Formula Disclosure legislation was adopted as printed in Resolution No. 8 on p. 886.

Secretary Kelly advised that this was the birthday of Chairman Diner and the members arose and congratulated him.

Chairman L. A. Seltzer and Vice-Chairman Ambrose Hunsberger were then installed as officers for the ensuing year.

S. L. Antonow as a first order of business made a motion that a rising vote of thanks be given the outgoing Chairman of the House of Delegates and the Committee on Resolutions. The motion was generally seconded by rising vote.

Chairman L. A. Seltzer announced the Committee on Place of Meeting, Committee on Patents and Trade Marks, and the Committee on Status of Pharmacists in Government Service. They follow:

Place of Meeting.—Chairman, T. J. Bradley, Boston, Mass.; R. A. Lyman, Lincoln, Neb.; W. F. Rudd, Richmond, Va.; C. G. Merrell, Cincinnati, Ohio; Laird J. Stabler, Los Angeles, Cal.

Patents and Trademarks.—Chairman, F. E. Stewart, Philadelphia, Pa.; S. C. Henry, Chicago, Ill.; F. W. Nitardy, Brooklyn, N. Y.; L. F. Kebler, Washington, D. C.

Status of Pharmacists in Government Service.—Chairman, E. F. Cook, Philadelphia, Pa.; A. C. Taylor, Washington, D. C.; C. C. Cannon, Baltimore, Md.; R. P. Fischelis, Trenton, N. J.; C. L. Eddy, New York, N. Y.

The final session of the House of Delegates was then adjourned.

COMMITTEE REPORTS

REPORT OF COMMITTEE ON COLORED GLASS CONTAINERS.

By H. V. Arny, Chairman.

NOTE: At the 1926 meeting of the Section on Dispensing of the American Pharmaceutical Association a discussion of the deterioration of certain chemicals by light rays was discussed and an outcome of the discussion was the authorization of the creation of a committee to study the problem. This committee, now known as the Committee on Glass Containers, as appointed by Chairman Nichols consisted of H. V. Arny of New York, I. A. Becker of Chicago and Fitzgerald Dunning of Baltimore. The results of their first year of work is outlined below.

Your committee, upon receiving official notification of its appointment, began operations on November 1, 1926. Realizing that a large field of work had been entrusted to us, we early agreed that the efforts of our first year should be devoted to organization. Whether we have accomplished this aim, the following report will show.

At the outset of our work we decided upon the following general principles:

1. While it is generally accepted that amber glass is the proper type of glass for delicate chemicals we take the protecting value of such glass too much for granted.

2. The mere fact that a certain glass is colored yellow does not necessarily indicate that such glass will give adequate protection against the actinic action of day-light and other sources of light.

3. Our committee should therefore investigate the light-protecting properties of various types of glass containers; not merely those made of amber glass but also those of other colors.

4. The study should also include the amount of protection afforded or deterioration produced by light rays from ultraviolet and infra-red regions of the spectrum.

5. The field is too vast to be satisfactorily solved by a committee of three. That we must obtain the coöperation of other research agencies goes without saying.

6. One of our first tasks will be to get some information as to work already performed or being now carried out by these other research agencies. In short, the preparation of a bibliography of work of this character is our first obligation.

7. As to outside agencies to whom we will turn for information and aid the following have been suggested.

U. S. Bureau of Standards
Mellon Institute
Chemical Manufacturers
Pharmaceutical Manufacturers
Corning Glass Works
Manufacturers of glass bottles for chemicals and pharmaceuticals
Bausch and Lomb Optical Co.
Eastman Kodak Research Laboratories.

8. Supplementing this list, we should get in touch with all individual research workers in the field of Pharmacy (or outside of it) who are engaged in this sort of research work. In short, we should bring our problem to the 400 (or more) persons now on the mailing list of the National Conference on Pharmaceutical Research.

In accordance with these general principles, the following questionnaire was drawn up and sent out with an explanatory circular letter:

QUESTIONNAIRE.

1. Has your research work brought any light upon the question of the preservation of pharmaceuticals and medicinal chemicals by use of colored glass containers?
2. Have you published the results of your investigations on this subject?
3. If so, will you kindly give bibliographical references, or if possible, send reprints of your publications on the subject?
4. Are you doing research along these lines at the present time?
5. If so, will you be willing to coöperate with us in attempting to serve the physicians of this country and their patients by pointing the way to retail and manufacturing pharmacists of properly protecting medicaments in suitably selected glass containers?
6. Will you be willing to serve on one of the three sub-committees noted above; either as now constituted or when sub-divided into more specialized groups?
7. Could you suggest some person doing work of this character who might be willing to aid us?
8. Could you suggest bibliography (other than your own) dealing with this subject?

Seven hundred copies of the questionnaire and circular were distributed and the scope of distribution may be summarized as follows:

1. Every physicist connected with the National Research Council.
2. Every chemist connected with the National Research Council.
3. Every pharmaceutical research worker connected with the National Conference on Pharmaceutical Research. This list totaling about 500 comprises:
   (*a*) Members of the Scientific Section of the American Drug Manufacturers' Association.
   (*b*) Members of the revision committees of the United States Pharmacopœia and of the National Formulary.
   (*c*) Pharmaceutical research workers of the Bureau of Chemistry and of the Association of Official Agricultural Chemists.
   (*d*) Teachers in the leading colleges of pharmacy.
   (*e*) Individual research workers, retail pharmacists, etc.
4. Chemical manufacturers.
5. Glass manufacturers.
6. Scientists in optical and electric manufacturing plants.

From these 700 questionnaires, we have had 52 answers and of these 13 stated that they were not interested in the problem before them. From the 39 answering favorably, we have obtained quite a bit of valuable information, which is given below in summarized form.

Taking the questions in irregular order, for purposes of lucidity:

The answers to Queries 5 and 6 brought 14 expressions of willingness to serve on sub-committees and 20 willing to coöperate in our work. Those ready to take part in sub-committee work may be grouped as follows:

Pharmacists and pharmacy college teachers	5
Chemical manufacturers	2
Pharmaceutical manufacturers	5
Chemists	2

As to offers of coöperation, the most valued response has come from the Research Laboratory of the National Glass Container Association. This is particularly valued since no practical results can be obtained unless the bottle manufacturers are with us in our work. Offers of coöperation have also been received from the Bausch & Lomb Optical Co., Dr. Schwarz, of the Mellon Institute, Corning Glass Works and a number of glass bottle manufacturers. A number of the latter group have written expressing interest and then referring us to the Research Laboratory of the Glass Container Association.

Special mention must be made of the kindly interest expressed by Dr. J. Eisenbrand of Frankfurt-on-Main, Germany, whose suggestions will be discussed on another page.

As to Query No. 1: Research work on the subject of the decomposition of chemicals and pharmaceuticals by light; the following comments are of interest and importance:

P. A. Houseman, of the MacAndrews and Forbes Co., Camden, N. J., is interested in the effect of light on hematoxylin in solid form and in solution.

H. J. Goeckel, of Cranford, N. J., has been studying the effect of light on 0.1 sodium thiosulphate V.S.

C. S. Marvel, of the University of Illinois, has observed the influence of light on pyrrol.

H. C. Lythgoe, director of the Division on Food and Drugs, Massachusetts Department of Public Health, published the results of his experiments on the influence of light on spirit of nitrous ether in 1914.

W. L. Scoville, of Parke, Davis & Co., Detroit, is about to publish his findings on the influence of light on precipitation in tinctures and fluidextracts.

R. E. Lyons, of Indiana University, studied some years ago the effect of light (arc and ultra-violet) upon the polymerization of linseed and tung oils.

Jules Bebie, of Monsanto Chemical Works, St. Louis, tested the stability of chloramine-T solutions in white and amber glass and found no difference.

A. D. Holmes, of E. L. Patch Co., Boston, Mass., has published several papers on the influence of light on the vitamin-A of cod-liver oil.

J. A. Pierce, now a graduate student at Johns Hopkins University, states that when in the employ of a pharmaceutical manufacturer, he conducted experiments on the influence of light on tincture of aconite.

Anton Hogstad, of the St. Louis College of Pharmacy, states that his experiments showed that cresol kept in colorless sealed tubes did not darken even when exposed to sunlight. He raises the question as to whether the darkening of cresol is not due to some ingredient of the glass container.

L. C. Roche, of the Maryland Glass Corporation, Baltimore, states that his laboratory has just started research work with different colored glass bottles containing unstable compounds. The work will not be ready for publication for at least six months.

M. W. Tapley, of E. R. Squibb & Sons, Brooklyn, cites the work performed by Dr. Giesy and himself in 1926 (JOUR. A. PH. A. 15, 46) on the light-sensitivity of bismuth subcarbonate.

W. B. Rayton, of the Bausch & Lomb Optical Co., Rochester, N. Y., returns filled-in questionnaire stating that it will "show you how little we know about the subject matter your committee is investigating."

Dr. J. Eisenbrand, of the University of Frankfurt, Germany, was brought to the attention of the Committee on Colored Glass Containers, through an important paper on the subject of the effect of light on chemicals and pharmaceuticals published by him this year (*Pharm. Zeit.* 72, 247). Correspondence brought from Dr. Eisenbrand a courteous letter under date of May 6th, in which he stated (*a*) that as far as he knew his paper in the *Pharmazeutische Zeitung* and one by Bordier (*Compt. rend.* 163, 205) were the only published papers on the preservation of

medicinal chemicals and pharmaceutical preparations; (*b*) that as assistant to Professor von Halben in revising Landolt's "Physikalisch-chemischen Tabellen" he studied the light absorption by various glasses; (*c*) that this work showed him that our colored glass containers for medicines are in a large degree of little value; that particularly our knowledge of the protective value of amber glass leaves much to be desired. Dr. Eisenbrand also gives in his letter an excellent bibliography.

As to Query No. 3: bibliography on the subject: Dr. Eisenbrand furnished the following:

Effect of Light on medicinals:

Eisenbrand, see above.
Bordier, see above.

As to light absorption by colored glasses:

Gibson, *Jl. Opt. Sec. Am.*, 7, 693 (1923).
Federtieff and Lebedoff, *Zt. anorgan. Ch.*, 134, 87 (1924).
Belar, *Wein. Ber.*, 132, 45 (1923).
Bayley, *Phys. Rev.*, 24, 495 (1924).
Gibson, Tyndall and McNicholas, *Tech. Pap.*, Bureau Standards, 148.
Gibson and McNicholas, *Tech. Pap.*, Bureau Standards, 119.
Eckert, "Jahrbuch. Rad. Elektronik," 20, 93 (1924).

Dean Koch of the Pittsburgh College of Pharmacy suggests

Hans-Jacob Moller and W. Lens, "Proc. Int. Pharm. Cong." (1913).

Corning Glass Works sent the Committee the Bureau of Standards *Paper*, No. 148 (mentioned above) and also

Coblentz, Emerson and Long, *Scientif. Pap.*, Bur. Standards, No. 325.

Dr. Holmes, of the E. L. Patch Co., Boston, sends a reprint of a paper cod-liver oil (mentioned above), *viz:*

Holmes and Pigott, *Boston Med. & Surg. Jl.*, 195, 263 (1926).

To these may be added the following papers:

Lythgoe, Spirit of Nitrous Ether, mentioned above.
Macht and Krantz, Effect of Radiation on Digitalis, *Proc. Soc. Exp. Biol. Med.*, 23, 340 (1926).
Backstroem, Oxidation of Benzaldehyde, *Jour. A. C. S.* 49, 1480 (1927).
Tapley and Giesy, Effect of Light on Bismuth Subcarbonate, mentioned above.

The foregoing concludes our results to date. Now we will turn a few minutes to the utilization of information received. Your committee believes that the next work that should be performed represents problems in pure physics such as:

1. What types of glass are theoretically best adapted to hold back the rays influencing the deterioration of medicinal chemicals and pharmaceuticals?

2. Are recipes for such glass mixes available to the members of the Glass Container Association?

3. Can such containers be purchased by chemical and pharmaceutical manufacturers at reasonable prices; or rather at prices that are not prohibitive to the ultimate consumer?

4. The United States Pharmacopœia and the National Formulary list 423 chemicals and pharmaceuticals that experience has shown are sensitive to light. A list of these medicaments will be furnished at the proper time. Assuming that problems 1 to 3 are solved by physicists and that the physicists' findings are put into practical shape by the Research Laboratory of the Glass Container Association, then the individual medicaments mentioned above can be studied within the containers deemed theoretically satisfactory by such members of our other groups who have promised their coöperation.

5. The suggestions of Professor Hogstad and the paper of Tapley and Giesy mentioned above point out two other phases of our problem.

(*a*) When is air the cause of deterioration rather than light?

(*b*) When do certain constituents of the glass-mix produce the deterioration we ascribe to light?

To properly carry out such research the coöperation of the Bureau of Standards is essential and while your chairman has corresponded with two of the officials of the Bureau, no results are available for this report.

Last week your Chairman had a personal conference with an official of the Research Laboratory of the Glass Container Association, who expresses an earnest desire to coöperate along the lines suggested above, but who is awaiting specific instructions to that effect from the officers of his association. In the same way we should secure the active coöperation of the pharmaceutical manufacturing groups. Your chairman addressed the 1927 meeting of the American Drug Manufacturers' Association on this subject and likewise interested the officials of the American Pharmaceutical Manufacturers' Association in the same problem. We have heard that these two organizations have authorized appointment of committees to coöperate with us but up to now no official confirmation of the rumor has been received.

That we must receive the aid of the manufacturing groups goes without saying; as these groups are really more interested in the deterioration of medicinals through action of light than are the rank and file of the A. PH. A. membership. We must also make some arrangement as to a mutual bearing of the expenses of properly carrying on our work. This year, for example, printing, typing and postage expenses of your committee far exceeded the routine $25.00 committee budget.

At the conference with the official of the Glass Container Laboratory that gentleman suggested immediate research work by the pharmaceutical group on the question of relative preservative value of amber glassware now on the market. His idea was that instead of awaiting the precise work of physicists, as outlined above, that we start right in with glass containers now available and with certain typical unstable products, such as spirit of ethyl nitrite, solution of silver nitrate, solution of physostigmine salicylate, santonin and other dry chemicals; each investigator taking up a specific product and conducting observations of a period of a year or more. For such work he agrees to furnish all of the containers necessary for a comprehensive study of the subject.

In conclusion, your committee begs to state that the preliminary work is now completed except the enlisting of the active coöperation of the Bureau of Standards and of the organizations of the chemical and pharmaceutical manufacturers.

While we believe that the first experimental work should be that carried on by physicists and container manufacturers, we are ready to proceed to work within the pharmaceutical group, if the Section and the ASSOCIATION so direct.

THE MUSEUM AND LIBRARY OF THE A. PH. A. HEADQUARTERS.

Has your State Association prepared its history? If not this should be looked after. Those who have historical material—which should permanently be preserved and the owners would like to present for that purpose to American Pharmacy—should set it aside, marked "For the AMERICAN PHARMACEUTICAL ASSOCIATION, to be turned over to the ASSOCIATION when the Headquarters is completed," or, if it is not convenient to store it send it to the ASSOCIATION, 10 West Chase St., Baltimore. However, write for further instructions before shipping.

Many would like to have their names remembered by endowments and memorials to pharmacy during lifetime or by their will. Every one gives thought to other worthy purposes, but American Pharmacy, in general, has never before had the opportunity of serving, as will now be possible in the A. PH. A. Headquarters.

The time to give this matter attention is "as soon as possible." Due acknowledgment will be made of all donations. If you have no historical material or books, you may know of some one who would like to make a donation or provide an endowment.

IDAHO'S OFFICIAL LIST OF THE 14 LICENSED PROFESSIONS.

The Department of Law Enforcement, Bureau of License, Idaho, has compiled a new list of members of the 14 licensed professions, as recognized by the State; 684 pharmacists are listed, 260 of these reside outside of Idaho.

EDITORIAL NOTES

Editor: E. G. EBERLE, 10 West Chase St., Baltimore, Md.

Members of the Council, A. PH. A.: S. L. HILTON, *Chairman;* CHARLES H. LAWALL, *Vice-Chairman;* E. F. KELLY, *Secretary;* H. V. ARNY, A. G. DUMEZ, GEO. M. BERINGER, H. C. CHRISTENSEN, J. A. KOCH, J. H. BEAL, W. B. DAY, T. J. BRADLEY. *Ex-Officio Members:* C. W. JOHNSON, *President;* AMBROSE HUNSBERGER, JOSEPH JACOBS, *Vice-Presidents;* C. W. HOLTON, *Treasurer;* E. G. EBERLE, *Editor of the Journal;* A. G. DUMEZ, *Editor of the Year Book;* LEONARD SELTZER, *Chairman of the House of Delegates.*

Collaborators: The Members of the Council; E. FULLERTON COOK, *Chairman,* U. S. P. Revision Committee; W. L. SCOVILLE, *Chairman,* N. F. Revision Committee; the Chairmen of the Sections, A. PH. A.; L. W. ROWE, M. N. FORD, ADLEY B. NICHOLS, C. LEONARD O'CONNELL, W. P. PORTERFIELD; EDWARD SPEASE, *President,* A. A. C. P.; CHARLES B. JORDAN, *Chairman,* Executive Committee, A. A. C. P.; A. C. TAYLOR, *President,* N. A. B. P.; HENRY C. CHRISTENSEN, *Secretary,* N. A. B. P.

NEW AND NONOFFICIAL REMEDIES.

BISMARSEN.

The Council has authorized a statement, which is printed in *Jour. A. M. A.*, for July 16, 1927. A description is published in same number and the following is abstracted from that source.

BISMARSEN.—Sulpharsphenamine Bismuth.—Bismuth Arsphenamine Sulphonate.—The sodium salt of a bismuth derivative of arsphenamine methylene sulphonic acid (the exact structural formula of which has not been established) with inorganic salts. It contains approximately 13 per cent of arsenic and 24 per cent of bismuth.

Actions and Uses.—For the treatment of syphilis. According to Stokes and Chambers, the drug is somewhat slower in its action than intramuscularly administered sulpharsphenamine or intravenously administered neoarsphenamine, but much more rapid than bismuth; and it has marked "tonic" properties. More or less severe pains at the site of injection have been reported.

Dosage.—Bismarsen is administered intramuscularly. The initial dose is 0.1 Gm.; for succeeding doses Stokes and Chambers used 0.2 Gm. each of the drug dissolved in ampule with 1 cc. of sterile distilled water at the time of administration, adding to the solution 2 to 3 drops of a 2 per cent solution of butyn. At the time of reporting, however, the authors questioned the desirability of using the local anesthetic. Weekly increasing to biweekly doses were used in treatment courses of twenty doses.

Manufactured by the Abbott Laboratories, North Chicago, Ill. U. S. patent 1,605,691 (Nov. 2, 1926; expires 1943). U. S. trademark applied for.

Bismarsen is prepared by adding a solution of potassium bismuth tartrate in water to an aqueous solution of 3,3′ diamino 4,4′ dihydroxarsenobenzene N,N′ dimethylene sulphonate, dissolving precipitate with a measured quantity of sodium hydroxide solution, precipitating by pouring the clear solution into a methyl alcohol ether mixture, filtering off the precipitate and drying it in vacuo.

Bismarsen is a brownish yellow amorphous powder readily soluble in water, yielding a yellow solution which is slightly alkaline to litmus.

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. PUCKNER, *Secretary.*

ERYSIPELAS STREPTOCOCCUS ANTITOXIN (See New and Nonofficial Remedies, 1927, p. 337).

Lederle Antitoxin Laboratories, New York.

Erysipelas Streptococcus Antitoxin (Lederle) Unconcentrated.—This antitoxin is prepared by immunizing horses by subcutaneous injections of the toxic filtrate obtained from broth cultures of the erysipelas streptococcus, or by intravenous injection of cultures of the erysipelas streptococcus obtained from typical cases of erysipelas. When test bleedings show the serum to have reached a sufficient degree of potency, the blood is drawn under aseptic conditions, the serum is separated, clarified by Buchner filtration, sterilized by Berkefeld filtration and tested until the desired potency is obtained, this being determined by making serial dilutions of the serum with equal volumes of a dilution of erysipelas toxin of such strength that 0.1 cc. of the toxin-antitoxin will contain one skin test dose of the toxin. Erysipelas streptococcus antitoxin (Lederle) unconcentrated is administered in early cases of moderate severity in dosage of 12 cc. intramuscularly; in severely toxic and late cases, 36 cc. to 48 cc. intramuscularly, or 24 cc. to 36 cc. intravenously. Marketed in packages of one syringe, containing 12 cc.

—From *Jour. A. M. A.*, July 30, 1927.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1927, p. 340).

H. K. Mulford Co., Philadelphia.

Diphtheria Toxin-Antitoxin Mixture, New Formula, Park-Banzhaf's 0.1 L + (See New and Nonofficial Remedies, 1927, p. 341). Also marketed in packages of one 10 cc. vial (M 72–024) representing three immunizing treatments.

—From *Jour. A. M. A.*, August 20, 1927.

ACETARSONE (See New and Nonofficial Remedies, 1927, p. 83).

Acetarsone-Abbott.—A brand of acetarsone-N. N. R.

Manufactured by the Abbott Laboratories, North Chicago, Ill. No U. S. patent or trade mark.
Tablets Acetarsone-Abbott, 0.25 Gm.

ERYSIPELAS STREPTOCOCCUS ANTITOXIN (See New and Nonofficial Remedies, 1927, p. 337).

H. K. Mulford Co., Philadelphia.

Erysipelas Streptococcus Antitoxin (Concentrated)-Mulford.—This antitoxic serum is prepared by injecting horses intradermally with strains of hemolytic streptococci isolated by H. Amoss from human cases of erysipelas lesions, bleeding the horses and when test bleedings show the serum to have reached the desired potency, separating the serum, sterilizing it, and preserving by the addition of 0.35 per cent of phenol. The product is then concentrated by a process which preserves both the antitoxic and antibacterial properties claimed to be in the original serum. Erysipelas streptococcus antitoxin (concentrated)-Mulford is administered in doses of 20 cc., preferably given intravenously, and repeated within twelve to twenty-four hours if indicated. Marketed in packages of one 20 cc. syringe with sterile, glass-encased needle.

CHOLERA VACCINE (See New and Nonofficial Remedies, 1927, p. 358).

H. K. Mulford Company, Philadelphia.

Cholera Bacterin (Cholera Vaccine).—(See New and Nonofficial Remedies, 1927, p. 358). Also marketed in packages of one 20 cc. vial (M155-4) containing 1000 million killed cholera vibrios per cubic centimeter.

—From *Jour. A. M. A.*, September 10, 1927.

ALPHA-LOBELINE.

Preliminary Report of the Council on Pharmacy and Chemistry.

The Council has authorized publication of a statement, published in *Jour. A. M. A.*, Aug. 27, 1927.

Manufactured by C. H. Boehringer Sohn, Hamburg, marketed in ampuls of alpha-lobeline hydrochloride, 1/6 and 1/30 grain.

FELICITATIONS OF THE PHARMACEUTICAL JOURNAL AND PHARMACIST.

The official organ of the Pharmaceutical Society of Great Britain, the *Pharmaceutical Journal and Pharmacist*, of October 1st, comments editorially on the address of J. H. Beal, at the St. Louis meeting; also on the history of the AMERICAN PHARMACEUTICAL ASSOCIATION and fraternally felicitates the ASSOCIATION in these words: "There must always be a closer, and there ought to be a more cordial communion between all English-speaking peoples, than between them and the countries with other languages. It is in this spirit and on the strength of this bond that we warmly and fraternally felicitate the AMERICAN PHARMACEUTICAL ASSOCIATION on the attainment of its Diamond Jubilee, which was signalized on the occasion of its diamond anniversary meeting held at St. Louis last month by a remarkably luminous, eloquent and inspiring address by Dr. James H. Beal, on 'The Work, Principal Purposes and Ideals of the AMERICAN PHARMACEUTICAL ASSOCIATION.' But for limits of space we should fain reproduce the address in full. We quote some passages from it elsewhere in this issue, and now proceed to offer a running commentary on the more salient subjects dwelt upon by Dr. Beal." Extended comment is made on parts of his address; his pronunciative—that the spirit of tolerance is essential to scientific and social progress is designated "a wise and magnanimous utterance." The following paragraph of the editorial is quoted:

"For all who are concerned with or engaged in the work and policy of pharmaceutical organization, there are many lessons to be learned from the history and progress of the AMERICAN PHARMACEUTICAL ASSOCIATION, the promoters and continuators of which had to grope their way through the tentative stages of a loosely knit and almost open formation of the generalized type through successive stages of consolidated centralization, combined with division of labor and devolution. In some respects the present constitution and conventions of the ASSOCIATION are less democratic in theory than as originally conceived and laid down, but in others and indeed essentially as to actual working and results the ASSOCIATION is now more representative and democratic than at the source. It has come to be the matrix for that federation of all the pharmaceutical forces of the United States, which has long been the dream of the leaders of pharmacy there. That consummation has not yet been reached, but the ASSOCIATION has prepared the way for it, and it should not now be long delayed."

It is pleasing to note the interest in and estimate of the work of the AMERICAN PHARMACEUTICAL ASSOCIATION by the Official Organ of the Pharmaceutical Society of Great Britain. Although pharmaceutical practice in the United States differs from that of Great Britain, our members have found the votaries in Great Britain not so very different in purposes and ideals, nor have we had great difficulty in showing our appreciation when their members honored us by attending the meetings of the A. PH. A.

There should be more frequent visitations, not only between those of Great Britain and of the United States, but pharmacists of other countries; pharmacy will be benefited thereby.

We are grateful for the recognition given to the A. PH. A. by the *Journal and Pharmacist.*

PERSONAL AND NEWS ITEMS.

The *Pharmaceutical Journal and Pharmacist,* of September 24th, reports an interview with the editor of that publication and **Dr. F. E. Stewart** of Philadelphia, active member of the A. PH. A. After an account of his activities the article states that Dr. Stewart is the historian of the St. Andrews Society in Philadelphia, founded in 1749, and that one of the principal objects of this society in Great Britain is to attend the inauguration by the American Ambassador, the Honorable A. B. Houghton, of the Scottish War Memorial in Princess St. Gardens, Edinburgh, which is a gift from Scots in America and Americans with Scottish sympathies as a tribute to Scotland's sons who fell in the war. Later, Dr. Stewart traveled on the continent.

The British Pharmaceutical Conference will be held at Cheltenham in July or August 1928.

The University of Georgia in Volume 1, No. 14, of "Addresses," has published an address by **Dr. Joseph Jacobs** on "Crawford Williamson Long."

A. L. I. WINNE.

A. L. I. Winne is largely responsible for the organization of the Conference of Pharmaceutical Association Secretaries, at St. Louis Diamond Anniversary meeting, of the A. PH. A. The Secretary is W. H. Lamont, 5838 Plymouth Ave., St. Louis. A brief report of the Conference is printed in the September JOURNAL A. PH. A., p. 842.

The *President* of the Conference, A. L. I. Winne, is *Secretary-Treasurer* of the Virginia Pharmaceutical Asssociation; he is also *Secretary-Treasurer* of the State Board of Pharmacy, and one of the editors of the *Virginia Pharmacist.* He entered the drug business in 1904 and remained in the retail business until 1917; for a time thereafter he was engaged in the wholesale drug business and since then in the activities wherein he has become one of the leaders. He is ever ready in the cause of pharmacy and alert to its interests.

The *Oil Paint and Drug Reporter* reports an interview with Dr. A. R. L. Dohme, who has recently returned from Europe; liberty is taken in reprinting:

"Scandinavian countries are very conservative in the drug and chemical trades and still adhere to the old time pharmacies, which are limited in number and therefore sure of a fixed clientele, with prescription writing universal. They do not accept the sayso of other countries in the matter of medicinal preparations, and to be successful there, a foreign product must have the endorsement of local men.

"In Germany pharmacies are also apportioned according to population, and as a consequence have a fixed and fairly good value. The people are very friendly to foreigners and most accommodating in getting anything a visitor might want or need from somewhere else.

"In France pharmacies are more numerous and competition is greater, and the drug stores border more closely upon the American pattern, with a larger variety of merchandise, though prices are higher than in Germany.

"In England, drug stores, or chemists' shops, as they are called, more nearly approximate American pharmacies than those in any other country, and the same freedom to engage in business anywhere that exists in the United States is allowed there."

Van Pelt & Brown, Richmond, come in for complimentary comment in the Dietz Printing Co. house organ for August, because of their progressiveness in the advertising of their business. Incidentally, the advertising being done by this firm is helpful to every pharmacy in their territory—they advertise pharmacy as well as their own shop.— *Va. Pharmacist.*

Dr. J. M. Doran, Commissioner of Prohibition, has made public the statement that he

has found the druggists in a friendly state of mind toward prohibition enforcement officials and that they appeared to be well satisfied with the revised regulations.

Pharmacist **Edmond T. Humos** has been appointed drug inspector for the State of Washington. He has been engaged in the drug business for many years and therefore is thoroughly familiar with the problems of retail druggists.

Miss Margaret Cousins, daughter of **W. H. Cousins,** of the *Southern Pharmaceutical Journal,* is a graduate of the Department on Journalism of the State University. A son, W. H. Cousins, Jr., has taken up studies at the Southern Methodist University to fit him for an advertising and journalistic career.

THE STORM IN ST. LOUIS.

News of the disastrous storm in St. Louis at once turned thoughts to the host city, where several weeks ago the storm's fury laid waste millions of value in property, injured many, and cost the lives of about one hundred of its people. Mr. Pauley, in a letter, describes the wreckage brought about by the gale. Complete and partial loss was suffered by several druggists. The St. Louis College of Pharmacy building was not damaged, although all about this section the damage was large.

It is not necessary to go into details of the losses, but in these columns sympathy of the members should be expressed and, particularly, by those who enjoyed the hospitalities of this wonderful city, less than two months ago. Life is checkered with joys and sorrows; having gone through some of the darker experiences, we hope long years of increasing success for St. Louis.

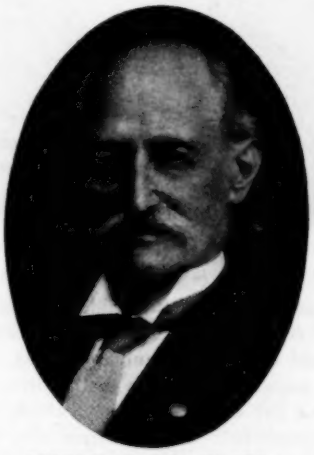
WHY SHOULDN'T THEY?

A gift of $2,000,000 to the League of Nations, for its library, by John D. Rockefeller, Jr., has been accepted.

OBITUARY.

JOSEPH LYON LEMBERGER.

In the JOURNAL OF THE A. PH. A., for April 1919, p. 253, under the title "A record of years and work in and for the AMERICAN PHARMA-



JOSEPH L. LEMBERGER.

CEUTICAL ASSOCIATION," brief biographical references were made to six members of the ASSOCIATION residing in Pennsylvania; the aggregate of membership held by these veterans represented 324 years. The last one of the six members, Joseph Lyon Lemberger, departed this life September 29th, after an illness of about five years.

Mr. Lemberger was born in Myerstown, Pa., December 7, 1834; later, his parents moved nearer to Lebanon, and here the youth received his common school education. In 1852 he engaged with Dr. Joseph Fitler in Philadelphia and matriculated at the College of Pharmacy, graduating in 1854. Returning to Lebanon he embarked in business with Dr. William M. Guilford, who is still living in Lebanon. During the war between the States he saw service as hospital steward. After some years of partnership, Dr. Guilford retired to give exclusive attention to his practice; later, Frank E. Gleim became a member of the firm which was discontinued about five years ago, as poor health compelled Mr. Lemberger's retirement.

During his active business life Mr. Lemberger held many responsible positions. He was Treasurer of the Boards of Commissioners for Foreign Missions of the Reformed Church for more than a quarter of a century; Chairman of the Executive Committee of the Associated Charities, and of the Young Men's Christian Association of Lebanon; member of Board of Managers for the Pennsylvania Chautauqua and Summer School for Teachers; member of the Board of Trustees and the Secretary

thereto for the State Asylum for the Chronic Insane of Pennsylvania. A number of these official positions were held by Mr. Lemberger until the condition of his health made it necessary for him to ask that he be relieved from these duties.

The Philadelphia College of Pharmacy and Science, his *Alma Mater*, conferred on him the degree of Master in Pharmacy; he also served on the Board of Trustees of this institution for a number of years. He was one of the organizers of the Pennsylvania Pharmaceutical Association, and served as its President and was for many years Treasurer of the ASSOCIATION. He held a number of important offices in the AMERICAN PHARMACEUTICAL ASSOCIATION, that of *President* in 1905–1906. About 30 titles on nearly all phases of pharmacy comprise his contributions to the programs of the ASSOCIATION; at the Golden Anniversary meeting he read a paper on "Status and Landmarks of American Pharmacy during Fifty Years;" in one of the more recent papers he gave an account of his early experiences in the drug trade. Being a ready speaker he added interest and value to many discussions of the General Sessions and Sections of the ASSOCIATIONS.

The late John F. Hancock said of him: "He is a man small in stature with a big soul. During his long membership he has contributed his activity, best thoughts and experience. His literary contributions are worthy of perusal. The writer has never known him to intentionally misrepresent facts."

The *Lebanon News* closed a comprehensive sketch with these words: "The city at large profited by his many years of wholesome influence."

Funeral rites were in charge of Rev. E. C. Brown, of Lancaster, assisted by Rev. W. D. Happel, pastor of the First Reformed Church of Lebanon; the burial service was conducted by the Masonic bodies of Lebanon.

His widow, née Mae Fletcher, survives the deceased; she devotedly administered to him during the years of his illness—the ASSOCIATION sympathizes with her in her sorrow.

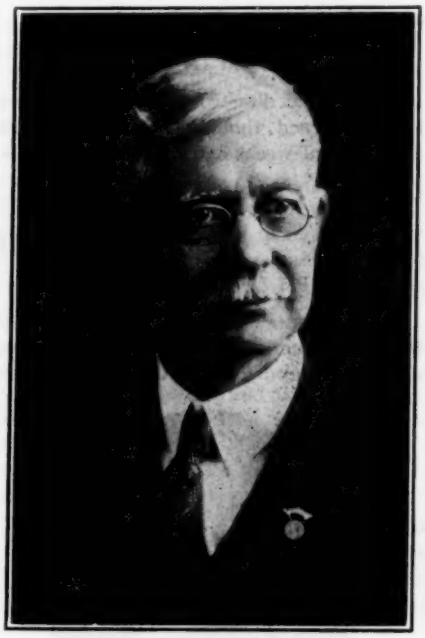
He lived a long and useful life and served the ASSOCIATION during nearly all of its years—we revere his memory.

FRANCIS HEMM.

Francis Hemm, member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1881, died at his home, in St. Louis, September 25th, aged 70 years. Professor and Mrs. Hemm had recently returned from California, where he sought to recuperate from the effects of a recent serious illness (pneumonia).

He was a graduate of the St. Louis College of Pharmacy, class of 1875. In 1882, he became a member of the faculty of his *Alma Mater*, as professor of pharmacy. He also taught chemistry and pharmacy at the Missouri Medical College, which institution, in 1897, conferred on him an honorary M.D. degree.

Professor Hemm was one of the organizers of the Alumni Association of the St. Louis College of Pharmacy; as a member of the faculty was beloved by the students; the golden jubilee celebration of the Alumni Association was held during September of 1925, when a strong impetus was given to the drive for the fund for the college building, which has just been completed. At this time the students subscribed $15,000 for the purpose of fitting up the Francis Hemm pharmaceutical laboratory as a testimonial to his life's work.



FRANCIS HEMM.

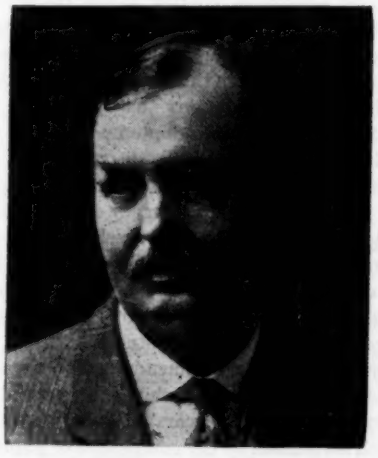
The deceased was for many years in the drug business and, as member of the St. Louis Retail Druggists' Association, devoted much time to the advancement of the retail drug business and of pharmacy. He was a

Life Member of the Missouri Pharmaceutical Association and its President in 1891–1892.

Sympathy is expressed to Mrs. Hemm and members of the family.

WILLIAM D. DUNCAN.

William D. Duncan, member of the AMERICAN PHARMACEUTICAL ASSOCIATION, who greatly encouraged, by precept and example, contributions to the Headquarters Fund, died September 19th, at his home in Ottawa, Ill. Mr. Duncan was born in LaSalle, Ill., June 27, 1859, and there he received his early



W. B. DUNCAN.

education and for a time read medicine in the office of Dr. Bry. In 1878 he entered the drug store of Leo Leffman; in 1885 he formed a partnership with W. B. Hummer and opened a store in Ottawa; later, this firm was dissolved and Mr. Duncan became associated in business with N. C. Perkins at the location occupied by the former until in 1902 when Mr. Duncan continued the business.

The *Daily Republican Times*, in an editorial comment said, "He was primarily a business man, possessed of all the qualifications that go to make up a man of trade. Billy Duncan at heart was a philanthropist, and in his modest way a city builder. Everybody who knew him liked him. He always was the same kindly person, always eager to do the good turn. Ottawa mourns Billy Duncan and honors his memory. He was a gentle, rather retiring man, whose beneficence long will be remembered by a loving citizenry and business clientele." The business houses of Ottawa closed during the afternoon of his funeral.

Mr. Duncan was President of the People's Trust and Savings Bank, also a former President of the Illinois Pharmaceutical Association.

The deceased was married October 12, 1883, to Margaret Schutte, who died in 1922; one daughter survives, Mrs. Jennie Duncan Peltier, who succeeds to the business of her father.

Mr. Duncan set a good example for others to follow, according to their means and opportunities. We are indebted to W. B. Day for the data of this sketch.

Dr. Joseph Schneider, oculist of Milwaukee, died June 4th. He made a most notable contribution in defraying a large part of the expenses incurred in the production of the facsimile of the first edition of "Pharmacopoeia Augustana" by Wisconsin Historical Society.—See p. 789, August JOURNAL A. PH. A.

Dr. Svante Arrhenius, Swedish chemist and winner of the 1903 Nobel prize in chemistry, died October 2nd, in Stockholm, after a short illness, aged 68 years. He is probably best known in connection with the theory of electrolytic dissociation, first announced in 1884 and amplified in 1887, whereby the chemical processes are explained as dependent on the electric conductivity of the reacting solutions. He was accorded many honors of highest distinction besides the Nobel prize.

SOCIETIES AND COLLEGES.

INTERNATIONAL PHARMACEUTICAL FEDERATION MEETING AT LEYDEN, SEPTEMBER 5–7.

The meeting of the International Pharmaceutical Federation was formally opened on September 5th by the Minister of Labor, Trade and Hygiene, Dr. Slotemaker de Bruyine. Dr. Josephus Jitta, President of the Sanitary Service of the Netherlands, was present as delegate of the Health Commission of the League of Nations. In his opening remarks President van Itallie thanked the Dutch government for the support given him.

There were present delegates from the pharmaceutical societies of Germany, Austria, Hungary, Czecho-Slovakia and representatives of the Pharmaceutical Society of Great Britain and the Dominions.

The Minister in the course of his remarks referred to the question of an international pharmacopœia. He thought that such a production would be possible if at the beginning a small number of representative drugs were selected for inclusion. He thought that steps should be taken to reach some working agreement between the Federation and the League of Nations.

General Secretary, J. J. Hofman, made his annual report which has been printed in the Federation's official bulletin. The reports on narcotics were communicated to the League of Nations and the Executive Committee decided to publish a list of proprietary medicines containing opium, morphine and other narcotics.

A financial report showed a small deficit for 1926. The report of the Secretary and of the Treasurer were adopted.

Messrs. Greenish, Eder, Schamelhout, Tifenea, Thoms, von Friedrichs and van Itallie were appointed members of an International Pharmacopœia Committee.

A report was received from the Pharmaceutical Society of Victoria on the fundamental principles of pharmacy law.

A report by Dr. Schamelhout was read by Mr. Haazen in which the necessity for State control of the manufacture and sale of clinical thermometers was advocated. This report provoked a great deal of discussion, both favorable and unfavorable. Mr. Collard demurred to the recommendation that the sale of certified thermometers should be restricted to pharmacists. All the recommendations of the report were adopted.

Dr. Schamelhout read the report by (Miss) Dr. v. Eerde, in which it was pointed out that any regulations of sera and vaccines would also have to apply to other biological preparations used in medicine. Permission to manufacture such products should be reserved to the Government and restricted to institutions approved by them with a pharmacist or pharmacists on the staff; that a license should be granted to pharmacists who desire to open such an institution, provided that all the requirements are met; that the preparation of autogenous vaccines be recognized as a *bona fide* officinal operation; that the preparation of sera and vaccines should be made a part of the courses for qualification as a pharmacist, and the sale of vaccines, sera and other biological products used in medicine should be confined to the pharmacist.

In the discussion Professor DeGraaf contended that the preparation of stock vaccines was quite such an officinal operation as that of autogenous vaccines.

Prof. Thoms stated that in Germany pharmaceutical education had not reached the stage when instruction in the required technique could be given. Moreover, few pharmacists in business were prepared to do such work. Dr. Jitta said that regulations for the manufacture and distribution of sera and vaccines in the Netherlands were being prepared by the government.

Dr. Schamelhout pointed out that for stock vaccines additional control would be needed. Moreover, if the preparation of vaccines were made an examination subject the knowledge so obtained was more theoretical than practical.

The recommendations as presented by Dr. Schamelhout were adopted.

There was considerable discussion on the subject of apprenticeship and academic training. Mr. Barthet said a survey of the civilized world showed that apprenticeship is deemed essential, although in Spain and Japan it is not compulsory. He said there was difference of opinion as to whether apprenticeship should precede or follow academic study.

Professor Eder recommended a Swiss system under which apprenticeship is preceded by a one and one-half years' University course, which is resumed on the completion of pupilage.

Dr. Schamelhout expressed preference for the Belgian system which provides for concurrent apprenticeship and academic study. The concensus of opinion seemed to be that the apprenticeship should be served in an open shop or in a hospital or army or navy dispensary but not in a factory.

MEASURING AND WEIGHING IN DISPENSING.

There was considerable discussion relative to measuring and weighing in dispensing but the meeting came to no definite conclusion on the subject. Miscellaneous correspondence which had been received from various sources was considered. A letter from the Spanish Pharmaceutical Society suggested the reconstruction of the number of new preparations on the market. Also, from the same source, came suggestions that pharmacists should be given the right to do sight testing and sell spectacles; that there be established an international regulation of office dispensing. No definite action was taken on any of these suggestions.

Considerable discussion arose over the question of methods for determining melting and boiling points.

Further discussion on the subject was held over for the next meeting of the Federation, which will convene in Paris next year.

THE FEDERAL WHOLESALE DRUGGISTS' ASSOCIATION MEETING.

The 12th annual convention of the Federal Wholesale Druggists' Association was held September 12th–14th, in St. Louis. Dean Charles E. Caspari of the St. Louis College of Pharmacy welcomed the delegates and R. E. Lee Williamson, of Baltimore, responded to the address of welcome for the ASSOCIATION.

The following officers were elected for the ensuing year: *President*, J. H. Marshall, Minneapolis; *Vice-President*, R. L. Stahl, Cincinnati; *Secretary*, R. E. Lee Williamson (reëlected) Baltimore; *Treasurer*, O. J. Cloughly, St. Louis.

A memorial observance was held for the late O. B. Thuma and Charles H. Huhn; feeling addresses were made by Messrs. Marshall, Stone, Williamson and Lamont.

The directors elected as *Chairman*, Charles L. Meyer, of Baltimore; *Vice-Chairman*, E. J. Knowles, Minneapolis, and as *Secretary*, Norman Park, of Washington, D. C.

Most of the business matters discussed applied to conduct of the coöperative stores. A banquet at the City Club closed the sessions.

THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS.

In an editorial on the meeting of the National Association of Retail Druggists, the *N. A. R. D. Journal* comments—"The recent convention was interesting throughout and all the sessions were well attended, all of which is but another way of announcing that the recent convention was successful from the standpoint of actual accomplishments."

Immediately after the close of the convention action was taken on place for the 1928 meeting, which resulted in favor of San Francisco.

The following are the officers for the ensuing year:

President, William A. Oren, Indiana; *Vice-Presidents*, Denny Brann, Iowa; Thomas Roach, Oklahoma; William M. Federmann, Missouri; *Secretary*, Samuel C. Henry, Illinois; *Treasurer*, Charles Ehlers, Ohio; *Members of the Executive Committee*, F. R. Peterson, Oregon; J. A. Goode, North Carolina.

Among the outstanding events were the addresses of Congressman Clyde Kelly, Commissioner J. M. Doran, and James H. Beal.

The greetings of the AMERICAN PHARMACEUTICAL ASSOCIATION were extended by Chairman of the Council S. L. Hilton, who stressed the importance of coöperation between the Associations.

Dean L. D. Havenhill spoke for the American Association of Colleges of Pharmacy, and President A. C. Taylor for the National Association of Boards of Pharmacy. A merited compliment was paid to four veterans in the Association by election to Life Membership of F. W. Meissner of LaPorte, Ind.; Thomas Stoddart of Buffalo; Louis Emanuel, Pittsburgh; and William F. Baum, of Danville, Ill.

President Samuel C. Davis presented a comprehensive address in which he dwelt on the history of the organization, its efforts in behalf of retail pharmacists; he advocated that druggists take a larger part in politics. He concluded by happy references to the relationships with other organizations and the splendid coöperation he had received from the officers of the Association.

The report of the Executive Committee was made by Chairman Julius Riemenschneider which contained in a comprehensive way a survey of the principal activities of the Association during the year. The Committee complimented the work of the Secretary's office; of the Washington representative, Mr. Brokmeyer, and of other officials.

Secretary Henry's comprehensive report detailed the business of his office and the work among State and other organizations. The condition of the Association, financially and otherwise, is highly gratifying to the membership.

Chairman Paul Pearson reported for the Committee on National Legislation, dwelling at considerable length on uniform price legislation, and the new prohibition bureau law.

A. Kiefer Mayer spoke of the work of the Druggists' Research Bureau, outlining the character of the program undertaken and the benefits that would accrue to all divisions of the drug trade, particularly the retail interests, from these activities.

Dr. J. M. Doran and C. L. Nolting were given a vote of thanks for the work done in their respective fields.

RESOLUTIONS ADOPTED.

Among the resolutions adopted by the convention were the following:

Favoring a summer training camp at Carlisle for pharmacists who have received commissions in the Army Medical Reserve Corp; endorsement of the Fair Trade Bill as a substitute for the Capper-Kelly Bill; an educational campaign was urged among young pharmacists against the opening of new drug stores; that the Association should aid in the education of medical students concerning official preparations, duplication of prohibition records, under forms 1455 and 1455-A, and duplication of narcotic records should not be required; codeine, apomorphine, dionine and stypticin should be eliminated from the Harrison Law as being non-habit forming; manufacturers should not indulge in trade practices prejudicial to the interests of independent retailers.

Druggists were urged to use automatic postage stamp vendors.

Manufacturers were urged to market no preparations smaller than the 25¢ size and retailers to adapt themselves to conditions in supplying 10¢ articles.

The public should be educated as to the advantages of the Fair Trade Bill.

A move to reopen the Indianapolis decision of the U. S. court of a number of years ago was advocated.

Unfair trade practices should be investigated by the Federal Trade Commission.

Attorney Brokmeyer was commended.

THE NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

Liberty is taken in using a comment on the Atlantic City meeting of the National Wholesale Druggists' Association in the *Oil, Paint and Drug Reporter* of October 3rd.

"Among the many progressive steps taken by the N. W. D. A. during its 53rd meeting, two stand out with particular importance; one of these is the enthusiastic determination to carry on in the coöperative plan of education and research; the other was a decision to establish a bureau of statistical analysis for the assistance of members in work at problems of cost accounting and in arriving at uniformity in accounting practices.

It was admitted on all sides that the cooperative work already done in connection with the Druggists' Research Bureau, preliminary as it had been, offered ample evidence that much good could be accomplished for the entire drug trade through the functioning of this agency. The wisdom of lending all possible support to this movement and of endeavoring to keep in touch with its results was remarked by many who spoke at the convention.

In connection with the creation of an internal bureau for the analysis of cost problems, the association suspended its affiliation with the Harvard Bureau of Business Research.

The association adopted a resolution favoring reduction of the income tax levied on corporations.

The Association reiterated its belief in the economic soundness of the maintenance of resale prices and adopted a resolution favoring the enactment of legislation which would enable manufacturers and distributors to coöperate for the prevention of price cutting.

Much discussion was devoted to problems arising in connection with the administration of the prohibition law. A resolution of congratulation for the Federal administration on the selection of J. M. Doran as Commissioner of Prohibition was adopted. This contained also a strong pledge of support for Dr. Doran in the performance of his official duties.

Coöperation of the members was asked in the compilation of authentic data of fire losses and for a thorough study of the merits of mutual insurance systems. The Board of Control also urged that member houses strive to establish a greater degree of cooperation between their sales and credit organizations.

A source of great regret to everybody was the absence of President C. F. Michaels on account of serious illness, mention of which was made in the September JOURNAL.

The officers elected for the ensuing year are: *President*, Sewall Cutler, Boston; *Vice-Presidents*, A. J. Geer, Charleston, S. C.; Sydney Lyman, Montreal, Canada; W. J. Montgomery, Jr., New Orleans; H. W. Williams, Fort Worth; J. E. Speckel, New York.

The three new members of the Board are: H. L. Fox, Wichita, Kansas; H. J. Frank, Portland, Oregon; J. C. O'Dell, Birmingham, Ala.; D. W. Ramsaur, Jacksonville, Fla.; and to succeed Sewell Cutler on the Board W. W. Gibson, Albany.

Dr. A. R. L. Dohme represented the A. PH. A. as delegate and presented the greetings of that body. In doing so he outlined briefly the work of the ASSOCIATION, the progress of the Headquarters, and some of the further aims and purposes of the organization. Secretary Kelly also addressed the convention.

Vice-President Harry I. Fox presided during

the convention. Greetings from President Coolidge were read, and regrets from Secretary Herbert Hoover, because of his inability to attend the convention. In closing his letter, the latter said that the organization had been of outstanding benefit to the drug industry and he congratulated those who are guiding the destinies of the Association upon the splendid work they are doing.

Harry J. Schnell, *Chairman* of Arrangements and Entertainments, is largely credited with the splendid results in carrying out the program.

The address of President Michaels was read by Vice-President Fox. President Michaels reviewed the activities of the Association, dwelling at length upon the work of the Druggists' Research Bureau and of the fine publicity the propaganda gives to pharmacy. Fair trade legislation was favored.

Secretary Newcomb's report was comprehensive and related to all the activities of his office. Extended mention was made by him of the publicity work being carried on and he thanked the drug journals for their hearty coöperation. Quite naturally, a subject in which the Secretary is much interested received considerable attention, namely, the Druggists' Research Bureau and the National Conference on Pharmaceutical Research.

As usual, the reports of the various committees have value, not only to the Association to which they are presented, but for all divisions of the drug trade. This is particularly true of the reports of the Committee on Legislation, on Quality of Medicinal Products, Research, and the Board of Control. The latter is especially of interest because it summarizes many of the actions taken on important questions brought out in the addresses and reports.

Brief extracts from the reports follow:

The Committee on President's Address approved the recommendations of President Michaels, reference to which is made in the following: "That the Association enter actively into the development of a platform of business principles consisting of planks, stating specifically what constitutes sound economics and other trade practice which may serve as guides to the entire drug industry. Full approval was given to the activities of the Druggists' Research Bureau and that an active part should be taken in promoting publicity for the entire drug industry.

The Board of Control, acting on the Report of the Committee on Credits and Collections, agreed that the work of the Credit Department is not only to try to save the merchant when he is in trouble but to help him keep out of trouble and that, therefore, the Credit Department work begins with the opening of the account.

Financial support was continued for the work of the Druggists' Research Bureau and the importance of having every member operate with this Bureau was stressed in order that the drug industry may obtain the essential facts, figures and information pertaining thereto.

Consideration was given to the treatment of old but disabled, or partly disabled, employees. The question was considered of sufficient importance for the Board of Control.

The work of the Legislative Committee during the year was endorsed and resolutions of approval on the appointment of Dr. J. M. Doran were adopted.

It was resolved that there should be Federal legislation recognizing the right of any producer of identified merchandise who is in fair and open competition with other producers of similar or competing merchandise to enter into enforcible contracts at wholesale or retail, or both, for the protection of resale prices upon his own identified merchandise.

The Board of Control complimented the work of the Secretary, E. L. Newcomb, and stated that he had more than carried out last year's recommendation that he visit as many wholesalers and members of the Association as possible. In doing so he has spoken before 35 local, State and national drug organizations to the enhancement of the prestige of the N. W. D. A. Favorable reference was also made to the issuance of the N. W. D. A. Proceedings within five weeks after the close of the Convention, and it was recommended that the Secretary continue his activities along the lines started this year. The Board congratulated the Association on its determined, forceful and constructive representative.

The address of Chairman A. Kiefer Mayer is well worth wide distribution. The "First Aid" publicity is referred to, for which considerable full-page newspaper advertising was made effective through the helpfulness of the wholesalers and manufacturers. On a larger scale, the N. W. D. A. has helped along the publicity for "Pharmacy Week," in support of which much advertising material has been mailed to the retail trade, along with sugges-

tions for pharmacy window displays, including about 50,000 window strips. The Druggists Research Bureau represents an undertaking, the like of which is new in coöperative effort and deserves the support of everyone engaged in any of the drug trade activities. H. D. Faxon said of it:

"Happily for all interests involved in the scheme of drug store merchandise distribution, at least one scientific development is already under way, the Druggists' Research Bureau. This activity as it progresses will be of inestimable value to all interests involved and more especialy to the independent retail druggist. It should have the hearty support of every member of the association, both morally and financially. It represents the best efforts of a scientific nature that this association has ever launched, and in a few short months has attracted nation-wide approval from all divisions of drug store merchandising and is destined to be the vehicle tending to hold the independent retail druggist in his rightful position as a professional necessity to his community."

Roblin H. Davis, of Denver, was the toastmaster at the banquet; the guest speakers were Governor A. Harry Moore, of New Jersey, and Brig.-Gen. Herbert N. Lord, Director of the United States Bureau of the Budget.

Atlanta was chosen for next year's convention.

IOWA PHARMACEUTICAL ASSOCIATION.

Iowa Pharmaceutical Association will hold its next meeting at Des Moines, during the week of February 27th. The sixth annual Drug Show will be a feature of convention week. Members of the Committee in charge—Messrs. Gibson, J. J. Gillespie, Brann, Slocum and Ruegnitz attended the N. A. R. D. meeting in Kansas City, where they gave publicity to the coming event.

MARYLAND PHARMACEUTICAL ASSOCIATION.

Maryland Pharmaceutical Association held a one-day session and an outing at Ocean City, Md., October 2nd and 3rd. About 35 members were in attendance; most of the Baltimore delegation going down by bus on Sunday, October 2nd, enjoyed the trip and sea air. The Eastern shore druggists joined with their fraters in the one-day celebration and a brief but interesting session of the Association on Monday; it was declared a happy get-together meeting and a similar trip, later, to another section of Maryland is spoken of.

MINNESOTA PHARMACEUTICAL ASSOCIATION.

The Minnesota Pharmaceutical Association will convene in annual session February 14th–16th, at Minneapolis. Members of United Drug Company and Rexallites will hold meetings during the week.

THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY.

The address of President Johnson is published in the September JOURNAL beginning on page 863.

The Committee on President's address did not believe that the publication of textbooks by the Association was practical at this time. For the purpose of strengthening the morale of the organization, the Committee suggested that a system of official visits be arranged by the Executive Committee which should be so planned that each member school would be visited at least once in three years, by members of the Association selected by the Executive Committee; their reports are to be collated by the Chairman of the Executive Committee for presentation to the Association. The annual dues were raised to $50.00. Secretary-Treasurer Cooper made a report of the activities of the Association for the year. Chairman Jordan submitted a report showing that the number of beginning students in the Conference colleges was 3,394. This is an increase of 5 per cent over the preceding year. Rhode Island College of Pharmacy, Howard University, College of Pharmacy, and the University of Texas, College of Pharmacy, were admitted to membership.

Chairman Kraus reported a growing sentiment in favor of the adoption of the four-year minimum course. The Committee recommended to the member-colleges that members of their faculty measure up to certain educational requirements and possess degrees as named in the report. For Instructor, the Bachelor's degree; for Assistant or Associate Professor, the Master's degree, etc.

Dean Day reviewed "Basic Material for the Pharmaceutical Curriculum."

Chairman Viehoever reported that research in colleges of pharmacy is increasing.

Chairman Rudd reported that the Committee on Investigation of Pharmacy Schools

by the Carnegie Foundation had carried out the instructions of the Association in asking that "pharmacy be given the first consideration after the present studies are taken care of." The Committee recommended that the member-colleges give all possible aid in persuading the Carnegie Foundation to give early attention to the pharmacy schools.

Dean C. W. Johnson reported that the Special Committee on Curriculum, with the approval of Dr. Charters, has requested the dean of each college for an estimate of the number of clock hours thought necessary to put over each subject listed in the Commonwealth Report in the form of an organized course. Coöperation with the Syllabus Committee was decided upon.

Chairman LaWall reported for the Committee on Relation of Boards and Colleges that group meetings had been held in districts 2, 3, 4 and 6 and that the total representation at these meetings was from 20 State Boards and 31 colleges. The Committee recommended that these conferences be continued, that there be an exchange of examination questions of the colleges with the boards, in a way that these questions may serve as a basis of constructive criticism, if needed. The Committee favored the discontinuance of the publication of Board of Pharmacy questions.

Chairman Faser reported for the Committee on Standards and Classification of Colleges.

Chairman Havenhill recommended the appointment of a committee to work on ways and means which would aid in placing all schools of the Conference on a four-year basis. It was recommended that the four-year minimum course be adopted to take effect in 1932. A committee to study the question of teaching Commercial Pharmacy, of which Professor Beard was Chairman, made no recommendation as there seemed to be quite a difference in the viewpoints of the different schools relative to its study.

Representative W. F. Rudd to the National Drug Trade Conference reported that a Committee on General Status of Pharmacy and the Drug Trade was authorized.

Professor Gathercoal gave a report of the work of the *Journal of Biological Abstracts.*

Dean Day reported having attended the Congress on Medical Education and directed the attention of the members to the published reports of the meeting.

Papers were presented as follows:

"The Cultural Value of Pharmaceutical History in the Pharmacy Curriculum," by Dr. Antoine E. Green. He urged that history be made a regular subject in the curricula to stir up the feeling of professional pride and honor. "Creative Education" was the subject of a paper by Dr. Viehoever, and "The Four-Year Course in Pharmacy" was discussed in Dean Rosario's paper.

Reports were made of the district meetings by Professors DuMez, Stocking, Husa, C. W. Johnson, Jordan, Rudd and Mollett. Reports on a number of these districts have been printed in the JOURNAL under the Department of the N. A. B. P. Among other actions, District No. 2 resolved that a study of the State Board of Pharmacy examination questions and ratings would be advantageous. District No. 6 resolved that it would be helpful to develop a system of supervised experience in pharmacy comparable to clinical work acquired in medicine and dentistry. District No. 7 urged the standardization of a three-year course and that an upper limit be placed on the number of hours which may be had in the three-year course, in order to avoid the danger of crowding too much matter in the curriculum.

Approval and encouragement was given to the work of the Druggists Research Bureau.

A resolution by Dean Rudd discouraged the opening of stores and is represented in the resolutions adopted by the A. PH. A., printed in the September JOURNAL on pages 885–6, by resolutions Nos. 4 and 7.

At the General Session of the Association of the N. A. B. P., the report of the Fairchild Scholarship Committee was presented. The Committee was asked to look into the activities of those to whom the award had been made in order to determine, if possible, what contributions they are making to pharmacy.

A paper by Professor Cooper on "What They Suggest" embodied some of the topics suggested by the deans for discussion at the general sessions.

"Objective Examinations in Pharmacy" was the subject of a paper by Dr. Stoddard and R. L. Austin. It presented an application of objective examinations to pharmaceutical purposes and set forth the results obtained during actual trial of the method.

Dean Serles and George Judisch presented "What Subjects May Be Added to Board of Pharmacy Examinations because of the Advent of the Three-Year Curriculum."

Dr. Fischelis and Dean Mollett presented the question "Are the Standards of the A. A. C. P. adequate for State Board recognition."

The Indianapolis College of Pharmacy was elected to active membership; the College of Pharmacy of Duquesne University and the Division of Pharmacy of the University of Idaho were elected to Associate membership.

The following officers were elected for the ensuing year: *President*, Edward Spease, Ohio; *Vice-President*, Henry M. Faser, Mississippi; *Secretary-Treasurer*, Zada M. Cooper, Iowa; *Chairman of the Executive Committee*, Charles B. Jordan, Indiana; *Members of the Executive Committee:* W. F. Rudd, C. H. LaWall, Edward H. Kraus and E. V. Howell. *Member Syllabus Committee*, D. B. R. Johnson, Oklahoma.

TEACHERS' CONFERENCE.

A paper on "Teaching the Meaning of Chemical Structure" was presented by Prof. Bauer and the question proposed by Dean Rudd on "Where is the greatest waste of time in the first two years in chemistry," were discussed in the Chemistry Section. Dr. Townes R. Leigh is the new Chairman and Dr. Nellie Wakeman is the Secretary.

The Section on Materia Medica discussed a paper by Dr. Youngken on "The Teaching of Botany to Pharmaceutical Students." Prof. Plitt presented a paper on "The Teaching of Pharmacognosy" and Dr. Schneider led a discussion on the "Teaching of Therapeutics." Prof. L. K. Darbaker is the Chairman and Dr. H. W. Youngken is the Secretary of this Section.

A paper by Prof. Burt, "What Is a 10% Solution" was discussed in the Pharmaceutical Section. As a result a recommendation was adopted for the appointment of a Committee to report on an approved method for a percentage solution.

Dean Gidley demonstrated his method of teaching posology, and Prof. Spencer presented a paper entitled "How the Three-year Minimum Saved the Students One-third More Clock Hours for Use in the Pharmacy Laboratory." Dean William F. Gidley is Chairman of the Section and Prof. Adley B. Nichols is Secretary.

OREGON BOARD ESTABLISHES A LABORATORY.

The Oregon State Board of Pharmacy has established an analytical laboratory in the School of Pharmacy Building at Corvallis. The laboratory is under the supervision of Secretary Ward and the director is Dr. Henry M. Burlage, assisted by Dr. F. A. Gilfillan, formerly of the Pharmacy faculty of the University of Florida.

AMERICAN CHEMICAL SOCIETY FORMS DIVISION OF HISTORY.

The American Chemical Society has organized a Division of the History of Chemistry. Professor L. C. Newell of Boston University is the Chairman and Prof. Tenney L. Davis of the Massachusetts Institute of Technology is the Secretary.

SCHOOL OF PHARMACY OF THE UNIVERSITY OF MARYLAND.

Plans for the new building for the School of Pharmacy, funds for which were appropriated at the last session of the Maryland Legislature, are now under way, with the expectation of occupying the building in the Fall of 1928. During the present year class rooms and laboratories in the old Church Building and in the building provided by a group of the Alumni, are being used.

The Alumni Association of the School of Pharmacy has provided the sum of $100.00 to be awarded annually to a graduate student in pharmacy for the pursuit of pharmaceutical research during each succeeding scholastic year. The special project of the Alumni Association for this year, and which is already meeting with enthusiastic and substantial support, is the collection of a sum of money for the purpose of establishing a pharmaceutical library in the new building when it is opened in 1928.

PHILADELPHIA COLLEGE OF PHARMACY AND SCIENCE.

At the regular meeting of the Trustees of the College, on September 26th, Dr. Wilmer Krusen was formally elected President. The following Trustees were reëlected to serve for a three-year period: Walter V. Smith, Dr. George D. Rosengarten, Dr. Robert Shoemaker and Dr. Charles H. LaWall.

The New buildings of the College are now rapidly nearing completion and will be occupied by the present classes in January next.

SCHOOL OF PHARMACY, HOWARD COLLEGE.

The Alabama Pharmaceutical Association has endorsed the school of pharmacy of Howard College. Dr. James L. Brakefield

is head of the School of Pharmacy and has charge of the Department of Biology.

HOPKINS GROUPS OBSERVE CENTENARY OF LORD LISTER.

The centenary of Lord Joseph Lister was observed October 10th at a joint meeting of the Medical Society of the Johns Hopkins School of Medicine and the Medical Society of the Johns Hopkins Hospital, held at the School of Hygiene.

Dr. John Stewart, a former student and associate of Lord Lister, now professor of surgery at Dalhousie University, Nova Scotia, delivered the principal address. Speaking on "Lister, the Man and Surgeon," he brought out the wide range of his knowledge of the use of disinfectants.

DES MOINES COLLEGE OF PHARMACY.

The Des Moines College of Pharmacy, recently organized, sponsored by Carl Weeks, Frank C. Waterbury, L. H. Chamberlain and others, opened for instruction September 26th. Prof. E. O. Kagy is the dean.

THE PHARMACIST AND THE LAW.

ALCOHOL ADVISORY COUNCIL IS APPOINTED.

Appointment of an industrial advisory council has been announced by James M. Doran, Commissioner of Prohibition, with the approval of Seymour Lowman, Assistant Secretary of the Treasury.

There are twelve members of the council representing different groups affected by prohibition regulations applying to industrial alcohol. The members are as follows: Dr. Martin H. Ittner, Jersey City; Dr. Harrison E. Howe, Washington; H. S. Chatfield, New York; A. Homer Smith, Baltimore; Frank A. Blair, New York; Samuel C. Henry, Chicago; Frank J. Noonan, Boston; Russell R. Brown, New York; George F. Dieterle, Cincinnati; C. Mahlon Kline, Philadelphia; Fred S. Rogers, Middletown, N. Y.; Charles L. Reese, Wilmington.

The new industrial advisory council will be consulted by Mr. Doran in working out the program for the allotment of quotas to manufacturers of alcohol under the plan to control production. As already announced the new alcohol production control scheme will be made effective January 1st. Mr. Doran plans to consult with the council in the near future in connection with this matter.

It is also expected that the council will be consulted by Mr. Doran on other questions of prohibition administration, which affect the industries of the country.

ERGOT IMPORTATIONS.

Adoption of a more liberal policy in connection with the importation of ergot has been urged upon officials of the Food, Drug and Insecticide Administration of the Department of Agriculture by representatives of the New York crude drug trade. The head of one house conferred with Dr. A. E. Taylor, acting chief of the administration and in immediate charge of the office of imports. Dr. Taylor promised sympathetic consideration of the matter, but explained that no definite promises could be made as each shipment of ergot would have to be considered separately. Under the practice now prevailing, large quantities of Russian ergot have been barred, its quality as a rule being inferior to that of the Spanish product.

Dr. Taylor was told that there is a threatened shortage of supplies of ergot in this country and that there are reports of an attempt to corner available stocks with a resultant soaring of prices. To meet this situation, it was urged that the Food, Drug and Insecticide Administration adopt a more liberal policy in passing upon imports. It was proposed that where there is a question as to whether a shipment is sub-standard it be given the benefit of the doubt and permitted to come in wherever possible, under assurance that the preparations made from it would be brought up to standard. It was especially urged that a liberal policy be pursued with respect to the Russian ergot.

NARCOTIC RULES REVISION TO BE PROMULGATED SOON.

Revised regulations for the enforcement of the Harrison narcotic law will be promulgated in the near future. The work of revision, which has been in progress for several months, has been completed and the document is now awaiting approval of the Secretary of the Treasury. No date on which the revision will become effective has been announced.

NARCOTIC CONVICTIONS ARE UPHELD BY CIRCUIT COURT.

The United States Circuit Court of Appeals has affirmed the conviction by the district court of William Vachuda, Charles Webber and John C. Weller for the illegal importation of narcotics. The opinion by Judge Manton holds that the testimony was sufficient to present a question for the jury as to the connection of the defendants with the crimes for which they were convicted. The finding of the jury was supported by the trial judge's denial of the motion to set the verdict aside at its rendition. The judgment of conviction was accordingly affirmed.

GUATEMALANS HOLD AMERICAN PREPARED MEDICINES IN HIGH REGARD.

Guatemalan prepared medicines are manufactured by retail dealers in drugs, handling both their own and imported preparations. Some of these manufacturing chemists have been operating more than 50 years. Through systematic advertising they have kept their preparations before the public. A number of these preparations are duplications of American and European products for which a demand has been created, the formulas of which permit of slight changes without altering the remedial effects. These are sold much cheaper than the imported preparations.

Almost all well-known American prepared medicines are carried in stock by the druggists. The Guatemalans of the better class hold almost all American curative products in high regard.—*Consul General P. Holland.*

The Department of Commerce, Bureau of Standards, has issued a "Directory of Commercial Testing and College Research Laboratories."—Miscellaneous Publication No. 90—it may be had for 15 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C.

BOOK NOTICES AND REVIEWS.

The Law of Chemical Patents. By Edward Thomas, of the New York and District of Columbia Bars; Member, New York Patent Law Association, American Chemical Society; Associate Member, American Institute of Mining and Metallurgical Engineers. New York. D. Van Nostrand Company, 8 Warren St. 1927.

This valuable treatise will be found of great interest to readers, laymen as well as lawyers, who begin at the beginning and read the book through. Its 358 pages, 6 x 9, are printed in large type on excellent paper and the contents are well classified for reference and study.

The book consists of a selection from the author's digests of patent law. It is, of course, impossible in a book of this size to quote all decisions of the Courts on every point. Some points, in fact, are clearly grasped by the reader after perusing two or three quoted rulings. Others, especially those involving questions of equivalency, must be viewed in many phases. In a few instances, where the cases seem to be squarely contradictory, the author has deemed it advisable to include all the quotable cases bearing on the point at issue. The chapters, therefore, vary greatly in length. Those who desire to study more cases on many of the points taken up in the present book, are referred by the author to his *Chemical Patents*, published by John Byrne and Co. in 1917, where, in the appropriate headings in the notes they are cited.

The value of the book is greatly enhanced by a table at the beginning of approximately parallel volumes of law reports thus avoiding the overloading the quotations and the table of cases with parallel citations. Also included are every decision of the Supreme Court and many other decisions cited, which have been published weekly since January 1, 1872, in the Official Gazette of the Patent Office and the Commissioners Decisions, beginning with 1876.

The common belief is that inventors of all kinds possess a natural or common law right to the exclusive use of their inventions irrespective of the patent laws. This, however, is not the case. This fact is clearly brought out by the author in Chapter I, which deals with the nature of a patent. He illustrates the nature of the patent privilege very clearly by the following quotations from accepted authority:

"An American patent is a written contract between an inventor and the Government.... The consideration given on the part of the inventor to the Government is the disclosure of his invention in such plain and full terms that any one skilled in the art to which it appertains may practice it. The consideration

on the part of the Government given to the patentee for such disclosure is a monoply for seventeen years of the invention to the extent of the claims allowed in the patent." Fried, Krupp Aktien-Gesellschaft *v.* Midvale Steel Co., 191 Fed. at 594.

"The inventor gets the privilege to exclude the public from its common-law rights for a definite term. The public gets the advantage of a disclosure of something new, which the inventor might otherwise have kept secret." Waterbury, Buckle Co. *vs.* G. E. Prentice Mfg. Co., 294 Fed. Rep. at 938.

"The object of the patent law is to protect the inventor, not in some paper ideal, but in his actual contribution to the useful arts." Los Angeles Lime Co. *vs.* Nye, quoting Asbestos Shingle, Slate & S. Co. *vs.* Rock Fibre Mfg. Co., 217 Fed. 66.

The invention of pottery, suggested by Morgan as a criterion between savagery and barbarism is useful, also, in this connection, as a means of bringing out clearly the principles underlying the patent grant. Knowing this principle the theory of the copyright and patent laws in their relation to civilization becomes apparent. He who reads Mr. Thomas' book with this knowledge in mind will find it of great interest in showing why the laws read as they do and the way they are construed by the courts in the manner characterizing the decisions cited in this valuable volume.

As just stated, Mr. Morgan's criterion for distinguishing the time of evolution of the human species from savagery to barbarism—a distinction long since recognized by scientific writers—is the making of pottery. See his great work on *Ancient Society*, New York, 1887. The earlier methods of boiling food were either putting it into holes in the ground lined with skins and then using heated stones, or else putting it into baskets coated with clay to be supported over a fire. The clay served the double purpose of preventing liquids from escaping and protecting the basket against the flame. It was probably observed that the clay would answer the purpose without the basket. Whoever first made this ingenious discovery led the way from savagery to barbarism. Did this discovery confer upon the discoverer the right to prevent his neighbor from imitating and using this invention? Assume, for sake of argument, it did so. His every neighbor was as strong as he and unitedly they were stronger. How, then, could the discoverer enforce his right? Assume that he could enforce it; if he could, advance in evolution of the human species would have been proportionately hindered.

Civilization is founded upon imitation and improvement of the inventions and discoveries of others. Without imitation, therefore, there could have been no civilization. The theory upon which the copyright and patent laws is founded is tersely stated by Terrill in his treatise on patent laws:

"The theory upon which these laws rest is that it is to the interest of the community that persons should be induced to devote their time, energies and resources to original investigation for the furtherance of science, the arts and manufactures. This was recognized from the earliest periods which can pretend to be described as civilized. It is to the advantage of the whole community that authors and inventors should be rewarded, and no measure of reward can be conceived more just and equitable and bearing a closer relation to the benefit conferred by the particular individual than to grant him the sole right to his writing or discovery for a limited period of time."

But it must be always remembered that the object of the copyright and patent laws, as set forth in Article I, Section 8 and clause 8, of the Constitution of the United States, is to promote progress in science and useful arts not to create and perpetuate monopolies. The invention must be "new and useful." It must show in its inception greater amount of skill than naturally to be expected from one skilled in the art to which the invention pertains. The patent law requires that the Commissioner, in granting the patent, shall give it a name by which it may be recognized and conveniently dealt in, and that name belongs to the invention as a noun of the language and passes as such to the public when the patent expires.

Provided with this knowledge in advance the reader will find Mr. Thomas' book a fascinating study even though not seeking information for guidance in obtaining a patent for his own invention if that be his object in reading or referring to its pages.—F. E. STEWART.

Pharmaceutical and Medical Chemistry. By Samuel P. Sadtler Ph.D., LL.D., Virgil Coblentz, Ph.D., F.C.S., and Jeannot Hostmann, Ph.G. Sixth Edition, Revised and Rewritten by Freeman P. Stroup, Ph.M. XV + 711 pages.

J. B. Lippincott Co., Philadelphia and London. Price, $7.00.

This new edition of the above well-known book follows closely the lines of the older editions. Part I is devoted to a theoretical introduction of 50 pages. There follow chapters on the elements under the headings of *Hydrogen, The Halogens, The Oxygen Group, The Nitrogen Group, Boron* and *The Carbon Group.* Part II is the chemistry of the metals, divided into chapters such as *The Alkali Metals, The Silver Group, The Tin Group, etc.* These two parts comprise the inorganic subjects and cover 405 pages. Part III is devoted to organic chemistry and follows the usual arrangement including chapters on *Alkaloids, Terpenes, Glucosides* and *Proteins.* An appendix of 13 pages is devoted to *Electrolysis,* 11 pages, and 2 pages on the *Strength of Acids* and *Alkalies.* Covering, as the book does, the two large fields of inorganic and organic chemistry and attempting to include theoretical considerations as well as the specialized topics related to the two very broad fields of pharmacy and medicine the treatment is of necessity very brief. It is unfortunate that in the theoretical introduction none of the modern ideas regarding the electronic structure of the atom have been mentioned. Students of pharmacy and certainly students of medicine should know something about this subject. The same might be said of some of the other topics, notably that on colloids. The book is too ambitious in its scope to permit of extended discussions but it is possible that, with a good teacher, this is not as serious a fault as it appears to be.

The subject of *Inorganic Chemistry* is handled in the usual manner.

The part on *Organic Chemistry* also follows the usual order. The writer, however, sees no excuse for any "mental reservations" or any alternative definition for the subject. Organic chemistry is the chemistry of the compounds of carbon and qualification is only misleading and confusing. This part is well adapted to students of pharmacy although a more extended consideration of synthetic remedies is desirable. To the student of medicine who is primarily interested in physiological chemistry it offers but little more than a large number of well-known texts on organic chemistry.

The special chapter on alkaloids cannot be passed over without criticizing certain features. To divide them into two classes according to whether or not they contain oxygen is a startling innovation. This plan ignores the all-important character of the nitrogen-bearing groups which are of primary importance in the structure and behavior of alkaloids. The antiquated statement that "the liquid alkaloids do not contain oxygen while the solid alkaloids are oxygenated bases" is even more startling in the light of our present knowledge. It would be better to group the alkaloids according to the plant orders or families, as suggested by the author, or according to their physiological action if no satisfactory chemical classification can be worked out. The entire treatment is too brief for a subject which is of such great importance to students of pharmacy and medicine.

Beyond their brevity the writer has no criticism to make of the chapters on terpenes, volatile oils, resins, glucosides, etc.

The book is well printed and well paragraphed and with a good index. On the whole it is of great value to the student or teacher who wants in one volume and very briefly stated everything he desires to know or teach about the subject of chemistry as applied to pharmacy and medicine.—A. H. CLARK.

LIMITATIONS OF DRUG STORES IN GEORGIA.

A law has been passed by the Georgia Legislature providing for the limitation of the term "drug store" to a pharmacy operated with a registered pharmacist in attendance. The board members are placed on a per diem basis.

The N. A. R. D. Journal for September 22, 1927, devotes a number of pages to the Diamond Anniversary meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION. This is an evidence of the fraternal relations that exists between the associations represented; this is also shown by the large number of active workers who are members in both organizations.

OPPORTUNITY FOR SALESMEN.

On page XVII of this issue of the JOURNAL a large, well and favorably known firm is advertising for salesmen. If you are not personally interested you may know of *someone who is.* Our purpose in calling attention to the advertisement is to be helpful to some member of the A. PH. A.